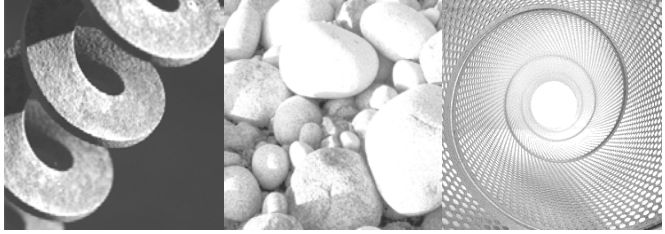

GEI Consultants

Consulting
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MassDEP RTN 3-23246

Phase V Status Report No. 17 and Remedial Monitoring Report No. 32

50 Tufts Street, Somerville, Massachusetts

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Acronyms and Abbreviations

µg/L	micrograms per liter
AUL	Activity and Use Limitation
CEP	Critical Exposure Pathway
COPC	Compounds of Potential Concern
CRA	Comprehensive Remedial Action
CSA	Comprehensive Site Assessment
DNAPL	dense non-aqueous phase liquid
EPA	U.S. Environmental Protection Agency
EPMM	Exposure Pathway Mitigation Measure
FIR	Final Inspection Report
GEI	GEI Consultants, Inc.
GLX	Green Line Extension
IH	Imminent Hazard
IRA	Immediate Response Action
lbs	pounds
LQG	Large Quantity Generator
LSP	Licensed Site Professional
MassDEP	Massachusetts Department of Environmental Protection
MBTA	Massachusetts Bay Transportation Authority
MCP	Massachusetts Contingency Plan
MNA	Monitored Natural Attenuation
NAPL	non-aqueous phase liquid
NSR	No Significant Risk
OHM	oil and/or hazardous material
OMM	Operation, Maintenance, and Monitoring
PCE	tetrachloroethylene (perchloroethylene)
PSS	Permanent Solution Statement
RAM	Release Abatement Measure
RAO	Response Action Outcome
RAP	Remedial Action Plan
RIP	Remedy Implementation Plan

RMR	Remedial Monitoring Report
ROS	Remedy Operations Status
RTN	Release Tracking Number
SHE	Substantial Hazard Evaluation
SSDS	sub-slab depressurization system
SVE	soil vapor extraction
TCA	1,1,1-trichloroethane
TCE	trichloroethylene
VOC	volatile organic compound

Executive Summary

On behalf of UniFirst Corporation (UniFirst) of Wilmington, Massachusetts, GEI Consultants, Inc. (GEI) prepared this Phase V Status Report No. 17 and Remedial Monitoring Report (RMR) No. 32 for the site at 50 Tufts Street in Somerville, Massachusetts (the Site). The Site is identified by Massachusetts Department of Environmental Protection (MassDEP) Release Tracking Number (RTN) 3-23246. The Site includes the 50 Tufts Street property (the Property), other properties in the neighborhoods east and immediately north, south, and west of the Property, and the Michael E. Capuano Early Childhood Center (Capuano Center) located at 150 Glen Street in Somerville, Massachusetts. The Site has been in Remedy Operation Status (ROS) for more than eight years. This Phase V Status Report No. 17 covers the period from June 16, 2019 through December 15, 2019.

Background

From approximately 1955 to 2002, the Property was used for storage and distribution of industrial chemicals, laundry supplies, and dry-cleaning supplies. Chemicals stored at, and transported to and from the Property, included chlorinated volatile organic compounds (VOCs). These chlorinated VOCs – particularly tetrachloroethylene (also called perchloroethylene [PCE]), trichloroethylene (TCE), and 1,1,1-trichloroethane (TCA) – have been detected in soil, soil vapor, indoor air, and groundwater at the Property and are therefore the compounds of potential concern (COPCs) for the Site. In some buildings within the Site, chlorinated VOCs have been detected in indoor air samples.

The detection of chlorinated VOCs in indoor air at some buildings required the implementation of an Immediate Response Action (IRA). The "Immediate Response Action Plan" associated with RTN 3-23246 was submitted to MassDEP on January 9, 2006. The Site was classified as Tier IC (Permit No. W085813). The "Phase II Comprehensive Site Assessment (CSA), Method 3 Risk Characterization, and Phase III Remedial Action Plan (RAP)" (Phase II/III) for the Site was submitted to MassDEP on July 14, 2008. The "Phase IV Remedy Implementation Plan" (Phase IV RIP) was submitted to MassDEP on August 10, 2009. The "Immediate Response Action Completion Report and Remedial Monitoring Report No. 11" (IRAC Report) was submitted to MassDEP on November 13, 2009, and the "Immediate Response Action Completion Report Amendment," (IRAC Report Amendment) was submitted to MassDEP on April 1, 2011. The "Phase IV Final Inspection Report, Remedial Monitoring Report No. 15, and Phase V Remedy Operation Status Report" (Phase IV FIR/Phase V ROS) was submitted to MassDEP on August 4, 2011.

Based on amendments to the Massachusetts Contingency Plan (MCP) effective June 20, 2014, the Site does not meet the inclusionary criteria for Tier I (310 CMR 40.0520[2]). GEI reclassified the Site as Tier II on August 1, 2014.

The remedial action alternative (RAA) selected by the Phase III evaluation included:

1. Installing Exposure Pathway Mitigation Measures (EPMMs) to the extent feasible (e.g. vapor barrier and venting system, or sub-slab depressurization systems [SSDSs]), and recording Activity and Use Limitations (AULs) as appropriate, for residences where the soil vapor migration pathway to indoor air has been confirmed, and installing EPMMs in occupied commercial buildings to reduce chlorinated VOC concentrations in indoor air to that which constitutes a condition of No Significant Risk (NSR).
2. Continuing to operate the soil vapor extraction (SVE) system at the Property to remove COPCs from the vadose zone.
3. Conducting a Site-wide Monitored Natural Attenuation (MNA) program to evaluate overburden and bedrock groundwater plume concentrations over time to assess the rate of natural attenuation processes, and to confirm that groundwater concentrations of chlorinated VOCs are generally stable or decreasing.

The Phase IV FIR/Phase V ROS documented that construction and implementation of the Comprehensive Response Action (CRA) has been completed; and additional activities, such as operation and monitoring of active remedial systems, will be conducted under Phase V ROS.

In accordance with the MCP, particularly 310 CMR 40.0892, this Phase V Status Report No. 17 and RMR No. 32 includes the following information regarding the remedial actions being conducted at the Site:

- A description of the type and frequency of operation, maintenance, and/or monitoring (OMM) activities.
- A description of any significant modifications made to the OMM activities since the last reporting period.
- An evaluation of the performance of the remedial action during the reporting period, including whether the remedial action is achieving remedial goals specified in the Phase IV RIP as described in 310 CMR 40.0874(3), and a description of any conditions or problems identified through OMM activities during the reporting period that are, or may be, affecting the performance of the remedial action.
- A description of the measures taken to address any conditions or problems identified through OMM activities during the reporting period.

In addition, this Status Report includes:

- Additional soil characterization data that the Massachusetts Bay Transit Authority (MBTA) collected for construction purposes, and provided recently to GEI, in connection with the Green Line Extension (GLX) Project.
- Updates to the Conceptual Site Model (CSM) and disposal site boundary.

Following is a summary of OMM activities conducted at the Site to date:

Capuano Center

An SSDS is installed in the east wing of the Capuano Center. In addition, GEI sealed certain slab/wall joints at the Capuano Center to mitigate a potential preferred migration pathway. GEI conducted 24 rounds of indoor air sampling after the SSDS was installed in February 2007. The soil vapor migration pathway to indoor air has been eliminated and a condition of NSR has been achieved for occupants of the Capuano Center. Accordingly, it is GEI's opinion that the system was constructed and is operating in accordance with the design standards provided in the Phase IV RIP, and has achieved the remedial objectives.

Between April 22 and April 24, 2015, GEI observed modifications to the SSDS including the installation of three radon fans on dedicated discharge pipes for each collection header extending above the roofline, and removal of the blower and associated equipment and shed housing. Remote telemetry sensors were also installed on the system. GEI performed post-modification indoor air sampling on May 23 and 24, 2015. VOCs were not detected above laboratory reporting limits during the indoor air sampling, indicating that the system as modified continues to meet the remedial objectives.

GEI will continue to inspect and maintain the system, and continue operation and monitoring under ROS.

Residential and Commercial Properties

As part of the IRA, while Site conditions were still under investigation, GEI took timely action to evaluate and implement measures to eliminate or mitigate Critical Exposure Pathways (CEPs) to the extent feasible. The feasibility of such measures was determined by physical conditions, including the suitability of each property to installation of active or passive vapor controls, and by amenability of property owners to provide legal access. Mitigative measures were initially implemented as IRA activities. The Phase II/Phase III assessment and evaluation of RAAs included response actions to address CEPs as part of the recommended CRA. With the submittal of the Phase IV RIP, the IRA addressing CEPs was closed with an IRAC Report and an IRAC Report Amendment. In accordance with the MCP (310 CMR 40.0427), "mitigation of Critical Exposure Pathway(s) is continuing by

incorporation of ongoing response actions to address the Critical Exposure Pathway(s) into the Phase IV Remedy Implementation Plan for the disposal site." Following the submittal of the IRAC Report and IRAC Report Amendment, therefore, all further response actions, including mitigation of any CEPs at the Site, have been conducted in accordance with the Phase IV RIP. Construction and implementation of the CRA has been completed. OMM activities, including operation of active remedial systems and active EPMMs (AEPMMs), continue to be conducted under Phase V ROS or are being implemented as Partial Permanent Solutions Statements (PSSs) with Conditions.

Following is a summary of activities conducted and results obtained with respect to EPMMs through December 15, 2019:

- EPMMs have been installed in 22 residential and commercial properties, not including the EPMMs installed at 50 Tufts Street, 60 Tufts Street, and the Capuano Center. One EPMM (at 103 Washington Street) was removed in anticipation of redevelopment when the building was vacant pending demolition. The results of post-EPMM installation indoor air sampling indicate that the remaining 21 EPMMs have achieved the remedial objectives. The commercial property at 163 Glen Street is being redeveloped into residential space by Somerville Community Corporation. The building is not occupied. Based on groundwater concentrations in the vicinity of 163 Glen Street that slightly exceed Method 1 GW-2 standards, the developer incorporated an EPMM into the project. The results of soil vapor samples collected at 163 Glen Street in April and November 2019 were less than the applicable MassDEP Residential Soil Vapor Screening Values, similar to results previously collected at the property. Indoor air sampling performed in April and November 2019 detected low concentrations of CVOCs at levels that pose NSR for a residential exposure scenario. GEI will perform additional soil vapor and indoor air testing during the next reporting period to continue to evaluate these conditions.
- The property at 103 Washington Street is slated for redevelopment into commercial and residential space. Prior to demolition of the building, GEI observed the removal of the SSDS fans and remote telemetry system at the building on May 31, 2017. The building at the property was demolished in March 2019. In the summer of 2019, the property at 103 Washington Street was purchased by the owner of the adjacent 105 Washington Street development project (Hodan Property Management). Building construction at 103 Washington Street has not yet begun. GEI is coordinating with the owner and developer of 103 Washington Street to potentially incorporate vapor mitigation components into the building construction, if necessary.

- The property at 105 Washington Street is being redeveloped into commercial and residential space. The original developer was HayCon, Inc.; however, the property is currently owned by Hodan Property Management and is being redeveloped by Ted-Co, Inc. The building was demolished between March and June 2019. In September 2019, GEI observed that construction had begun at the property and an elevator shaft had been constructed. Additional construction activities are ongoing. GEI is coordinating with the owner and developer of 105 Washington Street to potentially incorporate vapor mitigation components into the building construction, if necessary.
- The property at 31 Tufts Street is being redeveloped into residential apartment units by E-3 Development. As of the date of this report, no ground-breaking work has begun. The property is currently a paved parking lot, and there are no buildings. Additional information on development activities will be included in the next status report.
- ARCADIS prepared an Updated 2015 Method 3 Risk Characterization, which incorporated updated soil, groundwater, and indoor air data sets, and included updated MassDEP toxicity information, particularly for PCE and TCE. Based on the Updated 2015 Method 3 Risk Characterization, and based on the performance of individual EPMMs, a condition of NSR exists for current and future building occupants at each property within the Site.
- A Permanent Solution with Conditions Statement will be submitted for each property with an Option 1, 2 or 3 EPMM where the EPMM has achieved the remedial objectives, an AUL has been recorded for the property, and sufficient post-EPMM indoor air sampling has been conducted. The filing of a Partial PSS with Conditions for an individual property documents the achievement of regulatory closure under the MCP. Therefore, the Phase V provisions will not apply to properties for which a Partial PSS with Conditions has been submitted.

60 Tufts Street

An SSDS has been installed in the 17-unit condominium building at 60 Tufts Street. The SSDS monitoring data show that the sub-slab vacuum field generated by the SSDS influences nearly the entire floor slab area. Indoor air testing results indicate that a condition of NSR has been achieved for building occupants at 60 Tufts Street. Accordingly, it is GEI's opinion that the system was constructed and is operating in accordance with the design standards provided in the Phase IV RIP and has achieved the remedial objectives.

Remote telemetry was installed on the system on July 24, 2015. GEI will continue to inspect and maintain the system. GEI monitors parameters and sub-slab conditions for the system

(e.g., flow rate, vacuum) at the headers on a quarterly basis. GEI will continue operation and monitoring of the SSDS at 60 Tufts Street under ROS.

Based on pre-EPMM indoor air testing at 60 Tufts Street, and changes to the toxicological characteristics for PCE, the AEPMM may not be required to maintain a condition of NSR. GEI has communicated with the owners and occupants of 60 Tufts Street, who are amenable to EPMM closure indoor air testing. In accordance with MassDEP's 2016 VI Guidance, GEI has initiated a closure indoor air testing program at 60 Tufts Street.

50 Tufts Street Property

An SSDS and an SVE system have been installed at the Property. The SSDS monitoring data show that the sub-slab vacuum field generated by the SSDS covers most of the building slab area. The building is currently occupied by several tenants. Based on indoor air testing results collected since the combined system has been in operation, a condition of NSR has been achieved for the building at the Property for full-time commercial workers. Accordingly, it is GEI's opinion that the system was constructed and is operating in accordance with the design standards provided in the Phase IV RIP, and has achieved the remedial objectives. GEI will continue operation and monitoring of the combined SSDS/SVE system at 50 Tufts Street under ROS.

Remote telemetry was installed on the 50 Tufts Street system on April 14, 2015. The telemetry system at 50 Tufts Street consists of a wireless remote monitoring hub that will receive telemetry notification from the other AEPMMs at the Site. GEI monitors parameters and sub-slab conditions for the system (e.g., flow rate, vacuum, off-gas treatment efficiency) quarterly, and monitors for off-gas treatment efficiency monthly. GEI observed a contractor (Integrasense of Wilmington, Massachusetts) install system software and hardware upgrades in spring and summer 2019. Telemetry system modifications were completed in fall 2019.

Future Activities and Impact of 2014 MCP Amendments for AEPMMs

The MCP amendments effective June 20, 2014 included new requirements for AEPMMs implemented to meet the conditions for ROS (310 CMR 40.1026), including an operating regime for the active system and remote monitoring and automatic notification in the event of system failure. Operating regimes for active systems at the Site were included in the Phase IV FIR/Phase V ROS submitted on August 4, 2011, and included an OMM plan for the active systems.

Telemetry had previously been installed at 50 Tufts Street, 60 Tufts Street, and the Capuano Center to provide shutdown notification to GEI. The MCP requires that remote telemetry provide the owner and operator of the building and MassDEP notification upon failure of the system. Remote telemetry has been installed at each property with an AEPMM including the

Capuano Center, except for 9 Knowlton Street. The owner of 9 Knowlton Street has been unresponsive to telemetry access request letters, telephone calls, and property visits. Therefore, it is currently infeasible to install telemetry at this property.

MassDEP has indicated that the upcoming MCP changes may include a revision to the telemetry reporting requirements. GEI has retained a new telemetry contractor (Integrasense of Wilmington, MA) to evaluate any necessary system modifications, and to support system maintenance, as required.

50 Tufts Street Contaminant Mass Removal

The combined SSDS/SVE system installed at the Property serves to protect indoor air quality and to remove source material from the vadose zone below and around the building. Monitoring data from both the SSDS and SVE components through November 22, 2019 show that approximately 9,163 lbs of VOCs have been removed from the vadose zone at the Property. GEI will continue operation and monitoring of the combined SSDS/SVE system at 50 Tufts Street under ROS.

GLX Project

The MBTA, through its contractor GLX-Constructors, is extending existing MBTA Green Line service to Union Square in Somerville and beyond to College Avenue in Medford. This Green Line Extension (GLX) Project includes significant infrastructure improvements near the Site, including a new pump station, reconstruction of the bridge passing over Washington Street, new train tracks within the MBTA right-of-way, a new train station, and utility improvements.

The MBTA, GLX Constructors, and their contractors have initiated three Release Tracking Numbers (RTNs) related to construction activities undertaken at the Site:

- RTN 3-30620: A Special Project Designation (SPD) for the entire project.
- RTN 3-35528: A Utility Release Abatement Measure (URAM) for managing potentially contaminated soil and groundwater associated with installing a stormwater conveyance system within and adjacent to the MBTA right of way (ROW), and the demolition and replacement of the existing Washington Street Pump Station.
- RTN 3-34742: A Release Abatement Measure (RAM) for management of CVOC impacted soil encountered during GLX Project activities within Site boundaries.

GEI has not been provided with timely information concerning project plans, field work, or MCP submittals by the MBTA and GLX Constructors. GEI has reviewed and evaluated the

soil characterization and groundwater data publicly available for RTNs 3-34742, 3-30620, and 3-35528, and analytical results for 90 soil disposal pre-characterization samples collected within the MBTA ROW transmitted to GEI in a December 20, 2019 letter from Michael Clark, P.E. LSP from BSC Group of Boston, Massachusetts to Andrew Friedmann, PhD of the MassDEP. The soil characterization data have no impact on the previous risk characterization conclusions or remedial alternatives selected for the Site. GEI has made a minor change to the Site boundary, however, to include a portion of the MBTA ROW near Cross Street where very low PCE concentrations reportedly were detected in soil.

Monitored Natural Attenuation

GEI conducts groundwater sampling once per year at 20 monitoring wells at the Site to confirm that the overburden and bedrock groundwater plumes remain stable. On a semi-annual basis, GEI has been monitoring concentration fluctuations in MW122, MW112A, MW121D, and MW118D. Groundwater concentrations measured at these wells have been within a range of fluctuation that is consistent with continuing plume stability, particularly when considered in context with prior groundwater results from all monitoring wells. Overall, results from the 20 monitoring wells sampled as part of the MNA program indicate that the groundwater plumes are stable.

To facilitate construction of the new Washington Street Pump Station in 2016, located on the MBTA's property on the south side of Washington Street, the MBTA pumped groundwater to dewater the excavation. According to the MBTA, PCE concentrations in the dewatering effluent increased as pumping continued. The MBTA's pumping therefore induced changes in the distribution of PCE in shallow groundwater at the southern boundary of the Site. Based on the results of sampling from the wells monitored as part of the MNA program, these changes at the southern boundary have not affected the overall stability of the plumes.

GEI will perform additional groundwater sampling in spring 2020.

Remedial Monitoring Report No. 32

Remedial Monitoring Report No. 32, documenting OMM activities of active remedial systems at the Site, is presented in the BWSC-108A and 108B Transmittal Forms in Appendix A.

1. Introduction

On behalf of UniFirst Corporation (UniFirst) of Wilmington, Massachusetts, GEI Consultants, Inc. (GEI) prepared this Phase V Status Report No. 17 and Remedial Monitoring Report (RMR) No. 32 for the site at 50 Tufts Street in Somerville, Massachusetts (the Site; Fig. 1-1). The Site is identified by Massachusetts Department of Environmental Protection (MassDEP) Release Tracking Number (RTN) 3-23246. The Site includes the 50 Tufts Street property (the Property), other properties in the neighborhoods east and immediately north, south, and west of the Property, and the Michael E. Capuano Early Childhood Center (Capuano Center) located at 150 Glen Street in Somerville, Massachusetts (Fig. 1-2). The Site has been in Remedy Operation Status (ROS) for more than eight years. This Phase V Status Report No. 17 covers the period from June 16, 2019 through December 15, 2019.

1.1 Contact Information

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1.2 Background

In 2002, a release of chlorinated volatile organic compounds (VOCs) (particularly tetrachloroethylene [also known as perchloroethylene (PCE)], trichloroethylene [TCE], and 1,1,1-trichloroethane [TCA]) to soil and groundwater at the Property was reported to the MassDEP and assigned RTN 3-23246. Three other RTNs were subsequently issued for

the Site: 3-24358, 3-24376, and 3-26114. For tracking and reporting purposes, these RTNs have been consolidated under RTN 3-23246.

The detection of chlorinated VOCs in indoor air at some buildings within the Site required the implementation of an Immediate Response Action (IRA). The "Immediate Response Action Plan" associated with RTN 3-23246 was submitted to MassDEP on January 9, 2006. The Site was classified as Tier IC (Permit No. W085813). The "Phase II Comprehensive Site Assessment (CSA), Method 3 Risk Characterization, and Phase III Remedial Action Plan (RAP)" (Phase II/III) for the Site was submitted to MassDEP on July 14, 2008. The "Phase IV Remedy Implementation Plan" (Phase IV RIP) was submitted to MassDEP on August 10, 2009. The "Immediate Response Action Completion Report and Remedial Monitoring Report No. 11" (IRAC Report) was submitted to MassDEP on November 13, 2009, and the "Immediate Response Action Completion Report Amendment" (IRAC Report Amendment) was submitted to MassDEP on April 1, 2011. The "Phase IV Final Inspection Report, Remedial Monitoring Report No. 15, and Phase V Remedy Operation Status Report," (Phase IV FIR/Phase V ROS) was submitted to MassDEP on August 4, 2011.

Based on amendments to the Massachusetts Contingency Plan (MCP) effective June 20, 2014, the Site does not meet the inclusionary criteria for Tier I (310 CMR 40.0520[2]). GEI reclassified the Site as Tier II on August 1, 2014.

The Phase II/Phase III identified the following areas of the Site requiring investigation and mitigation:

- The Property;
- The Capuano Center;
- 60 Tufts Street, a 17-unit condominium building north of the Property; and
- Certain residences and commercial buildings located near the Property.

The RAA selected by the Phase III was:

1. Installing Exposure Pathway Mitigation Measures (EPMMs) to the extent feasible (e.g. vapor barrier and venting system, or sub-slab depressurization systems [SSDSs]), and recording Activity and Use Limitations (AULs) as appropriate, for residences where the soil vapor migration pathway to indoor air has been confirmed, and installing EPMMs in occupied commercial buildings to reduce chlorinated VOC concentrations in indoor air to that which constitutes a condition of NSR).
2. Continuing to operate the soil vapor extraction (SVE) system at the Property to remove compounds of potential concern (COPCs) from the vadose zone.

3. Conducting a Site-wide Monitored Natural Attenuation (MNA) program to evaluate overburden and bedrock groundwater plume concentrations over time to assess the rate of natural attenuation processes, and to confirm that groundwater concentrations of chlorinated VOCs are generally stable or decreasing.

As part of the IRA, while Site conditions were still under investigation, GEI took timely action to evaluate and implement measures to eliminate or mitigate Critical Exposure Pathways (CEPs) to the extent feasible. The feasibility of such measures was determined by physical conditions, including the suitability of each property to installation of active or passive vapor controls, and by amenability of property owners to provide legal access. Mitigative measures were initially implemented as IRA activities. The Phase II/Phase III assessment and evaluation of RAAs included response actions to address CEPs as part of the recommended Comprehensive Response Actions (CRAs). With the submittal of the Phase IV RIP, the IRA addressing CEPs was closed with an IRAC Report and IRAC Report Amendment, in accordance with the MCP, particularly 310 CMR 40.0427 ("mitigation of Critical Exposure Pathway(s) is continuing by incorporation of ongoing response actions to address the Critical Exposure Pathway(s) into the Phase IV Remedy Implementation Plan for the disposal site"). Following the submittal of the IRAC Report and IRAC Report Amendment, all further response actions were continued under Phase IV and Phase V.

The CRA for the Site includes continued active operation and maintenance of the existing commercial and residential EPMMs, and the SSDS and SVE system at the Property, to achieve a Permanent Solution pursuant to 310 CMR 40.0890. It is GEI's opinion that the Site meets the requirements for ROS in accordance with the MCP (310 CMR 40.0893[2]):

- The Phase III RAP was completed on July 14, 2008. The Phase IV RIP was completed on August 10, 2009.
- A final inspection has been performed and confirmed that the CRA has been constructed and implemented in accordance with the Phase IV RIP and is meeting projected design standards to achieve a Permanent Solution.
- Each source of oil and/or hazardous material (OHM) is controlled at the Site. Non-aqueous phase liquid (NAPL) is not visibly present at the Site. Any dense non-aqueous phase liquid (DNAPL) that may be present is not migrating and exists in a stable configuration. The Phase III demonstrated that it is not feasible to eliminate DNAPL at the Site. The dissolved-phase groundwater plumes and vapor plumes are stable and are not causing an increase in concentrations of VOCs in groundwater, soil, soil vapor, or indoor air. There are no unpermitted releases of OHM at the Site.
- Any substantial hazards have been eliminated as documented in the Substantial Hazard Evaluation (SHE) completed by ARCADIS U.S., Inc. (ARCADIS) of

Chelmsford, Massachusetts in August 2011. ARCADIS also completed a Site-wide Method 3 Risk Characterization in August 2015, and based on the performance of individual EPMMs, a condition of NSR exists for current and future building occupants at each property within the Site.

- GEI has identified the longest duration of a shutdown of each active EPMM (AEPMM) that would be consistent with levels of exposure that do not pose an Imminent Hazard (IH) and poses a condition of NSR.

Construction and implementation of the CRA have been completed; additional activities, such as operation and monitoring of active remedial systems, or installation of new EPMMs, will be conducted under Phase V. The Site will operate in ROS until a Permanent Solution is achieved, except for any portions of the Site that may be closed under Partial Permanent Solution Statements (PSSs) with Conditions. Operating the SSDS and SVE systems, together with MNA, will ultimately achieve a Permanent Solution for the Site.

GEI will continue to conduct annual operation, maintenance, and/or monitoring (OMM) activities for installed EPMMs where sufficient indoor air sampling has been conducted, and not repeat indoor air testing, to confirm continued system effectiveness. GEI also conducts groundwater sampling and analysis as part of the MNA program.

1.3 Purpose and Scope

The Site entered Phase V with the submittal of the Phase IV FIR/Phase V ROS on August 4, 2011. In accordance with the MCP (310 CMR 40.0892), this Phase V Status Report No. 17 and RMR No. 32 includes the following information regarding the remedial actions being conducted at the Site:

- A description of the type and frequency of OMM activities.
- A description of any significant modifications made to the OMM activities since the last reporting period.
- An evaluation of the performance of the remedial action during the reporting period, including whether the remedial action is achieving remedial goals specified in the Phase IV RIP as described in 310 CMR 40.0874(3), and a description of any conditions or problems noted during the reporting period that are or may be affecting the performance of the remedial action.
- A description of the measures taken to correct any conditions or problems that may have been encountered during the reporting period.

This report covers the period from June 16, 2019 through December 15, 2019. Details of the engineering concepts, design criteria, construction plans, and specifications were previously

provided to MassDEP as part of the Phase IV RIP, IRA Status Reports, RMRs, and IRA Plan Modifications and are not revisited in this report.

1.4 Public Involvement (310 CMR 40.1400)

UniFirst and GEI conducted a series of community meetings to inform property owners, residents, and City of Somerville (the City) officials about the Site. GEI will provide copies of this Phase V Status Report No. 17 and RMR No. 32 to the local public document repositories that were established for the Site at the Somerville Central Public Library and at the City of Somerville Clerk's Office.

This report was submitted through eDEP (Transaction No. 1165192) on February 3, 2020. A copy of the eDEP Transmittal Form (BWSC-108) is provided in Appendix A.

Copies of property owner notification letters, including notice of sampling letters, chemical testing results letters, and other miscellaneous correspondence sent during the reporting period, are in Appendix B. As discussed in Section 3.2, GEI has stretched the disposal site boundary to include an area near Cross Street. A notification letter was sent to the owners of 137 Cross Street informing them of the modified disposal site boundary encompassing a portion of their property.

2. GLX Project

2.1 Background

The Massachusetts Bay Transit Authority (MBTA), through its contractor GLX Constructors, is extending existing MBTA Green Line service to Union Square in Somerville and beyond to College Avenue in Medford. The GLX Project includes significant infrastructure improvements near and through the Site, including a new pump station, reconstruction of the bridge passing over Washington Street, new train tracks within the MBTA right-of-way, a new train station, and utility improvements. The MBTA, GLX Constructors, and their contractors have initiated three RTNs related to construction activities undertaken at the Site. Chris McDermott of TRC Environmental of Lowell, Massachusetts, a subcontractor to GLX Constructors, is the LSP of Record for GLX Construction.

2.2 GLX RTNs

The MBTA, GLX Constructors, and their contractors have initiated three RTNs related to construction activities undertaken at the Site.

2.2.1 RTN 3-34742

On January 23, 2018, MBTA filed a Release Notification Form (RNF) for concentrations of PCE detected in the wet well within the pump station located at 132 Washington Street. MassDEP issued RTN 3-34742. On April 25, 2019, MassDEP issued MBTA a Notice of Noncompliance for failure to submit a Permanent Solution Statement, Tier Classification Submittal, or Downgradient Property Status (DPS) Submittal within one year of the RNF. In June 2019, Weston and Sampson, on behalf of MBTA, filed a DPS Submittal attributing conditions reported in the RNF to the Site.

On July 11, 2019, TRC, on behalf of GLX Constructors, filed a RAM Plan under RTN 3-34742 for management of CVOC impacted soil encountered during GLX Project activities within Site boundaries. According to TRC, up to 14,000 cubic yards of CVOC impacted will be managed under this separate RAM. TRC conducted in-situ soil sampling along the MBTA right-of-way behind the 50 Tufts Street building. Concentrations of PCE were detected up to 14 ppm.

On November 15, 2019, TRC filed RAM Status Report No. 1. The report states that between July and September 2019 approximately 11,680 tons of soil were transported off-site and disposed of as hazardous waste to Heritage Environmental Services landfill in Roachdale, Indiana. Although the soil was characterized as hazardous waste, it was stored off-site for

more than 90 days prior to disposal. According to TRC, a URAM completion report for RTN 3-35528 (Section 2.2.3) was submitted on August 7, 2019.

2.2.2 RTN 3-30620

On July 18, 2019, TRC, on behalf of GLX Constructors, filed RAM Status Report No. 7, under the Special Project Designation (SPD) RTN 3-30620. According to TRC, approximately 5,440 cubic yards of soil were excavated from within the Site boundaries as part of GLX Project activities conducted under the SPD. TRC stated in RAM Status Report No. 7 that soil to be excavated in the future would be managed under a different RAM Plan submitted under RTN 3-34742. The Report also stated that dewatered groundwater would be managed under a Utility RAM (URAM) under RTN 3-35528.

2.2.3 RTN 3-35528

On April 12, 2019, TRC, on behalf of GLX Constructors, filed a URAM Plan for managing potentially contaminated soil and dewatered groundwater associated with installing a stormwater conveyance system within and adjacent to the MBTA ROW and the demolition and replacement of the existing Washington Street Pump Station. TRC estimated up to 6,000 cubic yards of soil may be generated under the URAM.

On August 7, 2019, TRC filed a URAM Completion Report for RTN 3-35528. The report stated that 1,950 cubic yards of soil were excavated and managed under the URAM. Some of the soil was stockpiled within the ROW and some was transported offsite and stockpiled at an unidentified MBTA-owned property. Off-site disposal of a portion of this stockpiled soil to an unidentified out-of-state hazardous waste landfill began on or about July 14, 2019. Disposal of the stockpiled soil was expected to take 45 days.

In the URAM Completion Report, TRC states that all future soil originating from the Site and the ROW adjacent to the Site will be managed under the July 2019 RAM Plan for RTN 3-34742, and that all disposal documentation related to soil, sediment and granulated activated carbon (GAC) change outs will be submitted in RAM Status Reports for RTN 3-34742.

2.2.4 Soil Characterization Data from MBTA ROW

On December 23, 2019 the MBTA provided UniFirst with a copy of a letter from Michael Clark, P.E. LSP, BSC Group of Boston, Massachusetts addressed to Andrew Friedmann, PhD of the MassDEP providing analytical results for 90 soil disposal pre-characterization samples collected within the MBTA ROW between October 20 and November 6, 2019. The ROW sample locations are on Fig. 2.1, and a summary of the soil analytical results are in Appendix D.

3. Current Conceptual Site Model and Disposal Site Boundary

3.1 Conceptual Site Model

As defined in the MCP, the Conceptual Site Model (CSM) is a "dynamic framework for assessing site characteristics and risk, identifying and addressing data gaps and managing uncertainty, eliminating or controlling contaminant sources, developing and conducting response action strategies, and evaluating whether those strategies have been effective in achieving desired endpoints." (310 CMR 40.0006). GEI has developed and continued to update the CSM for the Site as appropriate based upon the investigation data documented in previous reports, including the Phase II Comprehensive Site Assessment, Immediate Response Action (IRA) Plan and Status Reports, the Phase IV Remedy Implementation Plan (RIP), and prior Phase V Remedy Operations (ROS) Status Reports. This section describes the current CSM based on data obtained through the end of the reporting period.

3.1.1 Site History Overview and Current Conditions

The Site is in a commercial/residential zoning district and includes the Property, together with portions of residential and commercial properties in the neighborhoods east and immediately north, south and west of the Property, and the Capuano Center (Fig. 1-2).

According to Sanborn Fire Insurance Maps (Sanborn Maps) obtained from Environmental Data Resources (EDR), from 1874 through at least 1900, residences were located on the Property. By 1933, most of the residences on the Property had been razed, and by 1950 no structures were located on the Property. An office building and warehouse was constructed on the Property in 1955. The warehouse was expanded in 1977. The nature of the business conducted by several different business entities at the Property from 1955 until 2002, when operations ceased, was the storage and distribution of industrial chemicals, laundry supplies, and dry-cleaning supplies. The Property is approximately 51,111 square feet (sf) and developed with an approximately 20,594-sf, one-story, masonry block building.

From 1888 until the present, the prevailing land use at the Site has been residential, but also has included commercial uses. The residences existing today are a mix of single and multi-family houses. A railroad is located between the Property and Alston Street and has been present at the Site since at least 1888. Sanborn Maps indicated that before 60 Tufts Street was converted into condominiums in approximately 1999, the property was a church (c. 1880-1933), a theater (c. 1933-1989), and a warehouse (c. 1989-1999).

The Capuano Center property was undeveloped land with a small pond located on the northern part of the property until it was developed into a playground in approximately 1950. The property remained a playground from approximately 1950 until 2001 when the City of Somerville took the playground and several abutting residences by eminent domain to build the Capuano Center. The Capuano Center is an 85,448-sf, 2-story public school located on an approximately 172,509 sf developed lot.

3.1.2 Potential Contaminant Sources

Chlorinated VOCs, particularly PCE, have been measured in soil, groundwater, soil vapor, and indoor air within portions of the Site. TCE and TCA have also been measured in soil, groundwater and soil vapor at the Property. These three chlorinated VOCs are the principal contaminants of potential concern (COPCs) at the Site. Historically, all three of these chlorinated VOCs were delivered to, stored at, handled, and distributed from the Property.

3.1.3 Contaminant Distribution

3.1.3.1 Soil

COPCs found in Site soil primarily are PCE and TCE in soil at the Property. The highest concentrations of PCE and TCE measured in soil were located beneath the Property building slab, ranging from 1,500 mg/kg to 1,800 mg/kg at locations SH-1 and SH-2 collected from depths between 4 and 12 feet.

Chlorinated VOCs were not detected in soil above MCP Reportable Concentration RCS-1 (1 mg/kg) and the Method 1 S-2/S-3 GW-2 (10 mg/kg) and S-2/S-3 GW3 (100 mg/kg) Standards in the seven soil borings installed in Tufts Street, east of the 50 Tufts Street building and property.

Site investigations indicate that chlorinated VOCs were delivered and offloaded from trucks at loading docks located at the north and south ends of the building and stored in above-ground tanks inside the building. For purposes of the Phase IV RIP, it was assumed that COPCs extended in groundwater, soil, and soil vapor from the Property building, including the former loading dock areas, to the ROW. This was confirmed by soil testing performed for construction purposes on behalf of the MBTA by Kleinfelder and TRC (Appendix D and Fig. 2-1). Concentrations as high as 14 mg/kg PCE (GLX-TPW-213) were detected in shallow soil (4-5 feet) and 54 mg/kg (KE-206) in deeper soils (10-10.5 feet).

PCE concentrations in the ROW soil samples decrease with distance north, south and west from the 50 Tufts Street building. These results are consistent with contaminant migration (primarily localized migration in soil and soil vapor, and downgradient contaminant

migration with groundwater) from areas under and near the 50 Tufts Street building, where the highest concentrations of VOCs have been detected in soil, soil vapor and groundwater.

Very low PCE concentrations were detected in the ROW soil samples north of the 50 Tufts Street building, ranging from 0.006 mg/kg (GLX-TPW-205) to 0.098 mg/kg (GLX-TPW-2141) at locations adjacent to the 60 Tufts Street building and 0.0006 mg/kg (GLX-TPW-503) to 0.0011 mg/kg (GLX-TPW-501) approximately 80 feet north of Cross Street. These concentrations are substantially below MCP Reportable Concentration RCS-1 (1 mg/kg) and the Method 1 S-2/S-3 GW-2 (10 mg/kg) and S-2/S-3 GW-3 (100 mg/kg) Standards.

Most of the 16 shallow soil samples collected by TRC west of the Tufts Street building were detected at concentrations below RCS-1, S-2/GW-2 and S-2/GW-3, except for five samples that ranged between 1 mg/kg (GLX-TPW-312) and 14 mg/kg (GLX-TPW-213).

These concentrations of chlorinated VOCs in soil within the ROW are likely attributable to migration of chlorinated VOCs in groundwater, volatilization from groundwater into soil vapor, potentially additional lateral migration in soil vapor, and re-adsorption onto soil particles. Historically, it also is possible that redistribution of shallow soils may have occurred during routine maintenance and repair activities in the ROW.

A sub-slab depressurization system (SSDS), described in more detail in Section 7 below, was installed and has been operating since April 24, 2009 at 60 Tufts Street, the property located between Cross Street and 50 Tufts Street, to address elevated cVOC concentrations identified in soil vapor there, and to control potential additional lateral migration of cVOCs in soil vapor from the source areas.

Chlorinated VOCs detected in ROW soil are not indicative of a new release condition, nor do they present an exposure pathway not previously considered in the Method 3 Risk Characterization. Accordingly, the soil characterization data that the MBTA collected for construction purposes and recently provided to GEI have no impact on the previous risk characterization conclusions or remedial alternatives selected for the Site.

At the Property, an SSDS began operating on the 50 Tufts Street property on April 30, 2007, and a soil vapor extraction (SVE) system began operating on August 22, 2007. Through November 2019, the operation of the SSDS and SVE system had removed approximately 9,163 pounds (lbs) of VOCs from the subsurface. The operation of the SSDS and SVE system has reduced the concentrations and mass of chlorinated VOCs in the vadose soil, which are likely to continue decreasing with ongoing operation of the system.

3.1.3.2 Dense Non-aqueous Phase Liquid (DNAPL)

Chlorinated VOCs (e.g., PCE, TCE, and TCA) in the form of DNAPL have not been observed in Site monitoring wells or in groundwater or soil samples collected from the Site. However, multiple lines of evidence indicate that DNAPL is likely present in overburden soil down to the top of bedrock (and possibly in bedrock) at the Site. A complete assessment of DNAPL presence and distribution, prepared by Kueper (2008a), is included in this Phase II CSA Report as Appendix M.

The majority of DNAPL at the Site exists as residual DNAPL, which is immobile. Connected phase DNAPL that may be present at the Site has reached a steady state and is not migrating.

It is likely that residual DNAPL is present:

- At various locations beneath the entire Property building footprint.
- North of the building footprint extending beneath the paved areas.
- East of the building footprint extending across Tufts Street.
- South of the building footprint extending beneath the paved areas.
- West of the building footprint, adjacent to the MBTA ROW.

3.1.3.3 Groundwater

Dissolved phase chlorinated VOCs have been measured in groundwater at the Property and in the overburden (fill, silt and till) and bedrock (argillite) to the south and east. The central portion of the overburden groundwater plume is characterized by the presence of elevated concentrations of dissolved chlorinated VOCs, particularly PCE. The VOC plume generally extends to the east and southeast of the Site, consistent with prevailing groundwater flow directions.

The shallow overburden groundwater plume is bounded approximately by Alston Street, Cross Street, Glen Street, Oliver Street, and Franklin Avenue. Very low concentrations (less than approximately 300 micrograms per liter (µg/l)) of PCE have been detected in groundwater collected from wells in deep overburden and bedrock at the eastern Site boundary shown on Fig. 1-2.

3.1.3.4 Underground Utilities

Dissolved phase chlorinated VOCs have been detected in storm drains and sanitary sewers located below the water table in the southern portion of the Site along Franklin Street and Washington Street.

3.1.3.5 Vapor Intrusion and Indoor Air

In some buildings within the Site, chlorinated VOCs have been detected in indoor air samples. Where such detections coincide with elevated chlorinated VOC concentrations measured in soil vapor, they are indicative of a completed pathway from soil vapor into indoor air. Whether and to what extent a completed pathway may exist has proven to be highly property-specific, depending on, among other things, location, soil type, foundation characteristics, and building design and condition. Elevated concentrations of chlorinated VOCs detected in soil vapor samples generally coincide with elevated concentrations of chlorinated VOCs in the groundwater plume. Soil vapor concentrations of chlorinated VOCs diminish a relatively short distance beyond the edges of the overburden groundwater plume. PCE has not been detected in the indoor air at properties over the outer portions of the shallow groundwater plume.

3.1.4 Source Characterization

As described in greater detail in prior reports, including the 2008 Phase II CSA Report and Phase IV RIP, Sources have been eliminated or controlled at the Site as and to the extent required for ROS (40 CMR 40.0893(2)(d)). Specifically:

- There are no unpermitted releases of OHM at the Site, and the sources of OHM at the Site have been eliminated to the extent feasible and are controlled.
- Visible DNAPL has not been observed in Site monitoring wells or in groundwater or soil samples collected from the Site. The residual DNAPL (and any connected phase DNAPL) is not migrating and exists in a stable configuration because of capillary trapping forces. The stability of the DNAPL sources is consistent with the stable groundwater concentrations in monitoring wells within the area of likely DNAPL occurrence.
- The dissolved phase groundwater plumes are at steady-state across the network of monitoring wells in both the overburden and bedrock.

3.1.5 Receptors and Potential Exposure Pathways

Potential exposure pathways at the Site based on distribution of Site contaminants include:

- Ingestion and dermal contact with soil by a current and future commercial worker, resident, trespasser, visitor, student, teacher, railroad worker, and landscaper; and a future utility worker and construction worker.
- Ingestion and dermal contact with groundwater by a future utility worker.

- Inhalation of air in an excavation by a future utility worker and construction worker.
- Inhalation of indoor air by current and potential future occupants of commercial buildings.
- Inhalation of outdoor air by a current and future commercial worker, resident, trespasser, visitor, student, teacher, railroad worker, and landscaper.

3.2 Disposal Site Boundary

The disposal site boundary was originally delineated in the 2008 Phase II CSA Report in accordance with the MCP based on information available at that time, including subsurface investigations at the 50 Tufts Street property and surrounding areas. GEI has made minor modifications to the disposal site boundary since 2008 as additional data have become available.

GEI reviewed and evaluated the soil characterization data that the MBTA collected in the ROW for construction purposes, and that it recently provided to GEI. Most samples were collected within the previously defined disposal site boundary. However, PCE was detected in two soil samples, albeit at very low concentrations (0.0006 mg/kg (GLX-TPW-503) to 0.0011 mg/kg (GLX-TPW-501)), north of Cross Street. GEI has modified the disposal site boundary to incorporate these data. The updated disposal site boundary is on Fig. 1-2.

4. Data Collection

4.1 Groundwater Sampling

GEI conducted semi-annual groundwater sampling at 4 monitoring wells in November 2019. A summary of all GEI groundwater sampling activities at the Site, including dates of sampling during this reporting period, is in Table 4-1. The groundwater testing results are summarized in Table 4-2, along with groundwater data from previous investigations. Groundwater sampling conducted between 2012 and 2014 by Kleinfelder, on behalf of the MBTA, for construction purposes as part of the GLX Project is summarized in Table 4-3. Monitoring well locations and the monitoring wells sampled by GEI during this reporting period are shown in Fig. 4-1. The laboratory data report associated with the November 2019 groundwater testing is in Appendix C.

4.2 Comparison of PCE Concentrations to GW-2 Standards

Fig. 1-2 presents the disposal site boundary, based on laboratory analytical results for environmental samples collected by GEI and others. Fig. 1-2 also delineates the areas in which concentrations of PCE in shallow groundwater (i.e., 15 feet or less below ground surface) exceed current and pending Method 1 GW-2 standards, based on Site-wide groundwater sampling results through November 2019.

The current Method 1 GW-2 standard for PCE in shallow groundwater is 50 micrograms per liter (µg/L). MassDEP published proposed revisions to the MCP on April 19, 2019, which have yet to be promulgated; these draft regulations would change the Method 1 GW-2 standard for PCE to 20 µg/L. Fig. 1-2 shows the extent of PCE in shallow groundwater exceeding the proposed Method 1 GW-2 standard, which is not significantly different from the extent of PCE in shallow groundwater exceeding the current GW-2 standard (50 µg/L). Extensive sub-slab soil vapor and indoor air testing has been performed at the properties that are within the area where PCE in shallow groundwater exceeds 20 µg/L, except for 159 Glen Street, where the owner has been unresponsive to access request letters and property visits seeking access to conduct sampling. We do not anticipate that additional investigation will be required if the Method 1 GW-2 standard for PCE is reduced to 20 µg/L.

4.2.1 Groundwater Plume Stability

Based on historic groundwater sampling conducted since 2006, the nature and extent of groundwater contamination at the Site has been well-characterized. In addition, groundwater analytical results are incorporated into the MNA program to support the plume stability monitoring and natural attenuation evaluation, as discussed in Section 9. Based on an

analysis of the Mann-Kendall statistical trend test results, which incorporates the additional groundwater testing data, the PCE, TCE, and TCA groundwater plumes continue to be stable or are slightly decreasing at the Site.

4.3 Soil Vapor Sampling

During this reporting period, GEI collected sub-soil vapor samples from two residential properties (13 Knowlton Street and 163 Glen Street). The soil vapor samples were submitted to Alpha Analytical, Inc. (Alpha) of Westborough, Massachusetts for laboratory analysis by U.S. Environmental Protection Agency (EPA) Method TO-15 with the following modified list of analytes:

- 1,1-Dichloroethane
- 1,1-Dichloroethylene (1,1-DCE)
- trans-1,2-Dichloroethylene
- cis-1,2-Dichloroethylene
- 1,1,1-Trichloroethane (TCA)
- 1,1,2,2-Tetrachloroethane
- 1,1,2-Trichloroethane
- Tetrachloroethylene (PCE)
- Trichloroethylene (TCE)
- Vinyl Chloride

The sub-slab soil vapor testing results are summarized in Table 4-4 and Table 4-5 respectively. The laboratory data reports are in Appendix C.

4.4 Indoor Air Sampling

From January 2006 through December 15, 2019, GEI collected indoor air samples at 75 residences and commercial buildings. Fig. 4-2 shows buildings where GEI conducted indoor air sampling. The procedure for collecting indoor air samples was in IRA Status Report No. 3. Samples are typically collected from the basement and first floor of each building.

Between June 16, 2019 and December 15, 2019, GEI collected indoor air samples from two residential properties (13 Knowlton Street and 163 Glen Street) to support AEPMM shutdown evaluations. The indoor air samples were submitted to Alpha for laboratory analysis by EPA Method TO-15 with the following modified list of analytes:

- 1,1-Dichloroethane
- 1,1-Dichloroethylene (1,1-DCE)
- trans-1,2-Dichloroethylene
- cis-1,2-Dichloroethylene
- 1,1,1-Trichloroethane (TCA)
- 1,1,2,2-Tetrachloroethane
- 1,1,2-Trichloroethane
- Tetrachloroethylene (PCE)
- Trichloroethylene (TCE)
- Vinyl Chloride

The recent and historical indoor air testing results are summarized in Tables 4-6 and 4-7. The laboratory data reports are in Appendix C.

4.5 Indoor Air Sampling – Checklists and Methods

GEI collected indoor air samples from the basement and first floor of residences using SUMMA® canisters and regulators provided by Alpha. Each canister was certified clean by Alpha. Copies of the certifications are in Appendix C. Typically, indoor air samples were collected over an approximately 24-hour period in residential buildings.

Flow regulators were attached to the SUMMA® canisters at the location of the testing. The SUMMA® canisters were placed so that the air inlet was approximately 3 to 5 feet above the floor. The laboratory-set flow regulator was then turned on, and the starting pressure and time recorded. The regulator was turned off before reaching ambient pressure, and the final pressure and time were recorded. Pre-Sampling Checklists, Indoor Air Sampling Checklists, and Photo Logs completed for each indoor air sample collected during this reporting period are in Appendix E.

4.6 Meteorological Conditions

GEI typically measures outdoor meteorological conditions during each of the indoor air sampling events. GEI also typically measures indoor temperature and barometric pressure during indoor air sampling. Measurements were taken with a portable barometer and thermometer, and were recorded on the Indoor Air Sampling Checklists (Appendix E). Meteorological conditions recorded during indoor air sampling events for this reporting period are summarized in Table 4-8.

5. Capuano Center

5.1 Background

The mitigation system at the Capuano Center is an SSDS with 18 sub-slab extraction points in six classrooms of the east wing. The interior slab/exterior wall joints of the six classrooms were sealed with a flexible epoxy sealant and extraction points were installed horizontally through the exterior wall. GEI began operating the SSDS on February 1, 2007.

Prior to April 2015, the extraction points were attached to three collection headers in exterior underground trenches and were operated by a 1.5-horsepower regenerative blower with pressure gauges, controls, and particulate filter housed in a garden-style shed. One discharge pipe extended from the blower shed to above the roofline of the Capuano Center.

In April 2015, system modifications were performed including removing the regenerative blower and associated equipment, and extending the three dedicated discharge pipes with radon fans for each collection header above the roofline of the Capuano Center. During the system modification, remote telemetry was also installed at the Capuano Center system. The remote telemetry consists of two radio nodes and three pressure switches connected to the three radon fans to send notification of a system shut down remotely to the wireless remote monitoring hub located at the Property.

The system does not include off-gas treatment. Based upon the measured flow rate and VOC concentrations, the annual discharge rate of VOCs from the system has been significantly less than 100 lbs per year; therefore, no off-gas treatment is required per MassDEP Policy No. WSC-94-150: "*Off-gas Treatment of Point-Source Remedial Air Emissions*," dated 1994.

5.2 Remedial Objectives

The design objectives of the Capuano Center mitigation system were to:

- Eliminate or mitigate, to the extent feasible, the potential soil vapor migration pathway to indoor air.
- Achieve a condition of NSR for occupants of the Capuano Center.

The SSDS monitoring data show that the sub-slab vacuum field generated by the SSDS influences the southern portion of the east wing. In conjunction with the physical sealing of the slab/wall joint, this indicates the soil vapor migration pathway to indoor air is controlled by the system.

5.3 Inspection and Monitoring

The system has been monitored in accordance with the requirements and schedule in the Phase IV RIP, and in accordance with the requirements and schedule presented in subsequent Phase IV Status Reports, and the Phase IV FIR/Phase V ROS.

Monitoring of the system was historically performed monthly; however, once telemetry was installed on the system, GEI began performing quarterly monitoring in July 2015. Monitoring of system parameters at the headers (flow rate, vacuum, and photoionization detector [PID] readings) and PID readings at outdoor monitoring points are conducted quarterly. Inspection and monitoring at the Capuano Center were performed two times from June 2019 to December 2019. A summary of monitoring activities conducted during this reporting period is in Table 5-1 and the Field Monitoring Forms are in Appendix F.

5.4 System Modifications

In response to fluctuations in vacuum readings, on December 22, 2016 GEI drilled drainage holes below the fan on each of the PVC header pipes as an interim measure to prevent condensate from building up and freezing inside the pipes during the colder winter months. The drainage holes have been effective at preventing the accumulation of condensate or ice within the header pipes, and vacuum readings have stabilized. On December 6, 2017, GEI adjusted the pitch on one of the PVC header pipes to improve drainage of condensate back into the ground surface. Following the pitch adjustment, there have been no vacuum fluctuation issues associated with accumulated condensate. GEI will continue to evaluate the potential for condensate accumulation during subsequent winter monitoring rounds, and whether additional pitch adjustments on the system piping are required. In June 2019, GEI replaced the pressure switch at each of the three fans in response to a telemetry message inaccurately indicating the fans were off when they were in fact operational. Following the change of the pressure switches, the telemetry system has been accurately reporting that the fans are running.

5.5 Performance Efficiency and Effectiveness

The SSDS monitoring data show that the sub-slab vacuum field generated by the SSDS influences the southern portion of the east wing. In conjunction with the physical sealing of the slab/wall joint, this indicates the soil vapor migration pathway to indoor air is controlled by the system. GEI also performed post-modification indoor air sampling in May 2015. VOCs were not detected above laboratory reporting limits during the indoor air sampling, indicating that the modified system continues to achieve the remedial objectives.

GEI has completed 24 rounds of indoor air sampling in the Capuano Center. The results of each round of sampling show that the system is meeting remedial design objectives (Table 5-2). Based on the indoor air testing results, and regularly collected system performance data, the soil vapor migration pathway to indoor air has been eliminated and a condition of NSR has been achieved for occupants of the Capuano Center. GEI has discontinued indoor air sampling and will rely on monitoring of operating parameters for the system to confirm continued effectiveness.

5.6 Management of Waste Materials

Infrequently, condensate in system piping may accumulate in the subsurface collection header pipes, or the cleanout drain for the header pipes. If observed, SSDS condensate will be pumped from the headers into the cleanout, which drains into the subsurface at the property.

5.7 Future Phase V Activities

Based on indoor air testing results, a condition of NSR has been achieved for occupants of the Capuano Center and the system is achieving the remedial design objectives. Since remote telemetry is now installed on the system, GEI will continue to monitor operational parameters, sub-slab conditions for the system (e.g., flow rate, vacuum), and collect readings from all outdoor monitoring points quarterly, to confirm ongoing system performance. GEI discontinued monitoring at interior monitoring points in April 2016, and instead relies on vacuum monitoring at exterior monitoring points to evaluate system effectiveness. During monitoring events, GEI will also perform maintenance tasks, which may include draining accumulated water from the collection headers and correcting any issues observed during routine inspection of system components.

5.7.1 Impact of 2014 MCP Amendments for AEPMMs

The MCP amendments effective June 20, 2014 include requirements for AEPMMs implemented as part of ROS (310 CMR 40.1026). As discussed above, an operating regime was included in the Phase IV FIR/Phase V ROS submitted on August 4, 2011, which included an OMM plan for the system.

The system formerly included telemetry that provided shutdown notification to GEI. The MCP requires that remote telemetry provide the owner and operator of the building and MassDEP notification upon failure of the system. GEI installed remote telemetry as part of the system modifications in April 2015 to provide the required shutdown notifications.

The operating regime in the Phase IV FIR/Phase V ROS did not identify the longest duration of a shutdown that would be consistent with a level of exposure that does not pose an IH and

that poses NSR. In accordance with the MCP (310 CMR 40.1026[3][e]), and as presented in Status Report No. 7 and RMR No. 22, the longest duration of a shutdown that would be consistent with a level of exposure that does not pose an IH and that poses NSR is 6 years for the Capuano Center system.

5.7.2 Regulatory Closure

As discussed further in Section 6.5, a Permanent Solution with Conditions can be achieved for properties where an AEPMM has achieved the remedial objectives, an AUL has been recorded for the property, and telemetry is installed. A Partial Permanent Solution with Conditions Statement may be submitted to achieve regulatory closure for the Capuano Center if the owner of the property, the City of Somerville, executes an AUL.

6. Residential and Commercial Properties

6.1 EPMM Installation

Through December 15, 2019, EPMMs had been installed at 23 residential and commercial properties. EPMMs were also installed at 50 Tufts Street, 60 Tufts Street, and the Capuano Center. The EPMMs at 50 Tufts Street, 60 Tufts Street, and the Capuano Center are discussed separately in this report.

Between June 16, 2019 and December 15, 2019, no new EPMMs were installed. There are currently 22 installed EPMMs at the Site.

6.1.1 163 Glen Street

The American Legion Post, located at 163 Glen Street, is being converted to a residential apartment building. The renovation is being conducted by the Somerville Community Corporation, the current property owner. Most of the existing building foundation has been retained, and a vapor barrier and sub slab ventilation piping network have been installed beneath the foundation. The building is not yet occupied. Construction has been managed to avoid intercepting the water table, so no dewatering was necessary.

Installation of the vapor mitigation system and management of soil disturbed during construction were conducted as RAM activities between September 9, 2017 and November 22, 2017. GEI did not receive notification that these activities had commenced until they were largely completed. GEI submitted a RAM Plan to MassDEP on June 28, 2018. GEI submitted RAM Status Report No. 1 on November 9, 2018 and RAM Status Report No. 2 on May 10, 2019. On October 23, 2019 GEI submitted a RAM Completion Report to MassDEP following the completion of foundation construction and other elements associated with vapor mitigation.

6.1.2 103 and 105 Washington Street

The properties at 103 and 105 Washington Street are being developed into a combined commercial and residential use building. Though originally being developed by separate owners, both properties are currently owned by Hodan Property Management. GEI is communicating with Hodan Property Management and its developer (Ted-Co, Inc.) regarding installation of a sub-slab vapor mitigation system into the new buildings planned for the two properties.

GEI observed that ground-breaking construction had begun at 105 Washington Street in July 2019. The building was demolished between March and June 2019. In September 2019, GEI observed that the construction of an elevator shaft had begun. GEI did not receive notification that these activities had commenced until they were largely completed. Based on communications with the developer, redevelopment activities have not yet begun at 103 Washington Street. GEI is communicating with the developer to incorporate vapor mitigation components into building construction, if necessary.

6.1.3 31 Tufts Street

The property at 31 Tufts Street is being redeveloped for residential use. E3 Development, Inc. is the designated developer. E3 Development is currently proposing a three to four story residential apartment building with above ground parking and a public open space. The property is currently used as a surface parking lot. As of the date of this report, no ground-breaking work has begun.

6.2 EPMM Status

Fig. 6-1 shows the buildings with EPMMs installed. Table 6-1 presents the as-built design information for each installed EPMM.

Prior to installing EPMMs in occupied residences, GEI installed indoor air purifiers with activated carbon filters as a mitigation measure. At residences where the concentrations of chlorinated VOCs constituted a condition of NSR, UniFirst left the air purifiers, effectively giving them to the property owners.

The EPMM designs are categorized as Option 1, Option 2, or Option 3, as conceptually defined below:

- Option 1 – SSDS: This option includes the installation of one or more sub-slab vapor extraction points and a collection piping network connected to an electric fan located outside the building envelope. The fan is equipped with a condensate bypass drain and the fan exhaust is discharged above the eave line of the roof. No SSDSs (except for the system at the Property) require off-gas treatment. This option is installed in buildings with adequate sub-slab air flow and a competent concrete slab, or those properties where vapor barrier and venting systems are infeasible.
- Option 2 – Vapor Trench: The vapor trench option consists of a sub-slab venting system installed in a shallow trench around the interior basement perimeter, cement stucco applied to the walls, and an epoxy vapor barrier applied to the slab and stucco walls. The trench is backfilled with crushed stone and finished with

approximately three inches of new concrete to meet the existing slab surface. This option is installed in buildings with poor sub-slab air flow, a competent concrete slab, and a fieldstone and/or brick foundation. Sub-slab vapors are vented through a piping network that exits the building envelope at the sill elevation and terminates above the eave line of the roof.

- Option 3 – New Slab: The new slab installation option consists of installing a new concrete slab, a sub-slab vapor barrier, and a floor venting system; applying cement stucco to the walls; and applying an epoxy vapor barrier to the new slab and stucco walls. This option is installed in buildings with poor sub-slab air flow, an incompetent concrete slab, and a fieldstone and/or brick foundation. As with Option 2, sub-slab vapors are vented through a piping network that exits the building envelope at the sill elevation and terminates above the eave line of the roof.

The decision-making process for selecting a conceptual design based on Site-specific conditions is illustrated in Fig. 6-2. Table 6-1 identifies the design option for each EPMM currently installed and the primary engineering components of each.

6.2.1 Remedial Objectives

The design objectives of the EPMMs were to:

- Eliminate or mitigate, to the extent feasible, the potential soil vapor migration pathway to indoor air in residential buildings.
- Achieve a condition of NSR for occupants of the residence or commercial building.

6.3 Option 1 EPMMs

Option 1 EPMMs consist of active sub-slab depressurization achieved by the installation of a radon fan and associated network of piping. Several of the Option 1 EPMMs were originally installed as Option 2 or Option 3 EPMMs; however, the concentrations of PCE measured in the post-installation indoor air did not constitute a condition of NSR, and a fan was installed. Option 1 EPMMs have been installed at the following 10 properties:

- 35-37 Knowlton Street (originally Option 3)
- 31-33 Knowlton Street
- 13 Morton Street
- 18 Morton Street
- 23 Tufts Street

- 103 Washington Street (deactivated May 31, 2017)
- 95 Franklin Street (originally Option 2)
- 9 Knowlton Street
- 13 Knowlton Street
- 27 Tufts Street (originally Option 3)

Prior to the MCP amendments effective June 20, 2014, these properties could not achieve a Permanent Solution because of the operation of an active system. These properties can now achieve regulatory closure with a Partial PSS with Conditions, provided that the property owner executes an AUL. The condition associated with the PSS would be operation and maintenance of the AEPMM in accordance with the AUL.

6.3.1 Operation and Monitoring

To confirm the performance of an EPMM, indoor air samples are collected shortly after installation is complete. As identified in the Phase IV FIR/Phase V ROS for Option 1 EPMMs, following the initial post-installation indoor air sampling, indoor air samples were collected one time per winter for two consecutive years. In accordance with MassDEP guidance, "*WSC No. 16-435: Vapor Intrusion Guidance: Site Assessment, Mitigation and Closure*," dated October 14, 2016 (2016 VI Guidance), GEI has modified the post-installation indoor air sampling for newly installed Option 1 EPMMs to demonstrate effectiveness. Once a pressure differential has been established, one round of indoor air sampling will be performed during the heating season. The samples are analyzed for Site-specific chlorinated VOCs. Following one round of indoor air sampling, differential pressure across the slab will be used to demonstrate system effectiveness.

Inspection and monitoring also includes measuring VOCs at sub-slab sampling points with a PID, collecting pressure measurements using a manometer, and inspecting system components. If needed, repairs or modifications will be scheduled.

A summary of OMM activities performed for Option 1 EPMMs during this reporting period is in Table 6-2.

Based on focused Method 3 risk characterization calculations performed by ARCADIS, which incorporate pre-EPMM indoor air sampling results, several Option 1 EPMMs at the Site may not be required to maintain a condition of NSR. This is a result of the updated MassDEP toxicity characterization for PCE issued in January 2014. During the reporting period, GEI performed AEPMM shutdown sampling at 13 Knowlton Street in accordance with the 2016 VI Guidance.

6.3.2 AEPMM Shutdown Testing at 13 Knowlton Street

On November 1, 2016, a shutdown valve was installed on the SSDS riser pipe at 13 Knowlton Street. To simulate conditions without operation of the AEPMM, the SSDS fan was turned off and the shutdown valve was closed, for one week, beginning on November 14, 2019, prior to collecting indoor air samples.

On November 21, 2019, one indoor air sample was collected in the basement and one sample was collected on the first floor. PCE was detected in both samples. Concentrations of PCE were detected at 0.353 ug/m^3 on the first floor and 3.06 ug/m^3 in the basement. 1,2-Dichloroethane was detected at a concentration of 0.134 ug/m^3 from the sample collected on the first floor, but this compound is not considered a COPC. No other chlorinated VOCs were detected in the samples at concentrations above the laboratory reporting limits.

On November 22, 2019, one soil vapor sample was collected from beneath the basement slab. PCE was not detected at a concentration above the laboratory reporting limit. No other chlorinated VOCs were detected in the sample at concentrations above the laboratory reporting limits.

After the indoor air and soil vapor sampling was completed, the shutdown valve was opened, and the fan was reactivated. Based on the results of the Option 1 EPMM closure sampling, GEI will continue to evaluate the need for an AEPMM to achieve a condition of NSR at 13 Knowlton Street.

6.3.3 Impact of 2014 MCP Amendments for AEPMMs

The MCP amendments effective June 20, 2014 included requirements for AEPMMs implemented as part of ROS (310 CMR 40.1026). As discussed above, an operating regime was included in the Phase IV FIR/Phase V ROS submitted on August 4, 2011, which included an OMM plan for Option 1 EPMMs. However, telemetry was not installed at Option 1 EPMMs.

GEI has installed a Site-wide telemetry configuration consisting of a wireless remote network that is tied into the local wireless hub at the Property. Table 6-1 presents the Option 1 EPMMs where telemetry has been installed.

Remote telemetry has been installed at each property with an AEPMM, except for 9 Knowlton Street. The owner of 9 Knowlton Street has been unresponsive to telemetry access request letters, telephone calls, and property visits. Therefore, it is currently infeasible to install telemetry at this property.

The operating regime in the Phase IV FIR/Phase V ROS did not identify the longest duration of a shutdown that would be consistent with a level of exposure that does not pose an IH and that poses NSR, which was a new requirement under the MCP amendments. In accordance with the MCP (310 CMR 40.1026[3][e]), and as presented in Status Report No. 7 and RMR No. 22, the following exposure times were calculated for Option 1 EPMMs where pre-EPMM indoor air data were available:

- 13 Knowlton Street: 54 years
- 23 Tufts Street: 11 years
- 27 Tufts Street: 25 years
- 31-33 Knowlton Street: 31 years
- 35-37 Knowlton Street: 4 years

Several Option 1 EPMMs were installed based on sub-slab soil vapor results, and pre-EPMM indoor air data are not available (including 13 Morton Street, 18 Morton Street, 95 Franklin Street, 103 Washington Street, and 9 Knowlton Street). However, based on the proximity of the AEPMMs throughout the Site, the shutdown exposure times calculated for the properties with pre-AEPMM indoor air data are likely representative of the AEPMM properties with no pre-AEPMM indoor air data. Therefore, the longest duration of shutdown that would be consistent with a level of exposure that does not pose an IH and that poses NSR at these properties is likely between 4 and 54 years.

6.3.4 Efficiency and Effectiveness

For residential buildings, the primary goals for EPMM performance are the reduction of chlorinated VOC concentrations in indoor air to below laboratory reporting limits to the extent feasible, and to achieve a condition of NSR. For commercial buildings, the standard for successful EPMM performance is the reduction of chlorinated VOC concentrations in indoor air to that which constitutes a condition of NSR.

Through December 15, 2019, the results of post-EPMM installation indoor air sampling and monitoring indicate that each of the Option 1 EPMMs installed or activated at residential and commercial properties has achieved the remedial objectives.

6.3.5 System Maintenance and Modifications

During the reporting period between June 16, 2019 and December 15, 2019 GEI has conducted telemetry system maintenance and modifications at several properties. Maintenance has included:

- Replacing or adjusting the pressure switches at 13 Morton Street, 18 Morton Street, 95 Franklin Street, and 13 Knowlton Street;
- Replacing radio nodes at: 13 Morton Street, 95 Franklin Street, 27 Tufts Street, and 31-33 Knowlton Street;
- Relocating and replacing the radio node at 35-37 Knowlton Street to achieve better connectivity; and
- Replacing the SSDS fan at 35-37 Knowlton Street due to an unscheduled shutdown. On November 26, 2019, GEI found the fan to be inactive, and unsuccessfully attempted to restart the fan. GEI did not receive notification at the time of shutdown, because the telemetry system was temporarily deactivated during final system wide modifications, and instead sent a direct shutdown notification email to MassDEP while troubleshooting the system. GEI notified the building owner of the shutdown, the fan was replaced on December 17, 2019, and a restart notification email was sent to MassDEP. GEI previously observed the fan was operational on October 17, 2019 during telemetry modification and troubleshooting. Therefore, the maximum duration of shutdown was 61 days. The telemetry modifications are complete, and the telemetry system is currently operational and communicating with MassDEP.
- GEI continues to evaluate false shutdown notifications originating from the system at 18 Morton Street, despite the SSDS fan continuously operating. GEI has repeatedly visited the property to troubleshoot the system and has replaced system hardware including the node and pressure switch. GEI will perform additional evaluation of the sub-slab vacuum over the next reporting period to investigate whether an alternative pressure switch is required for the system. During this evaluation process, GEI will keep the telemetry messaging for 18 Morton Street deactivated to eliminate excessive false shutdown notifications. Until the telemetry notifications are reactivated, GEI will visit the property on a monthly basis to continue to confirm that the SSDS fan is operational.

6.3.6 Management of Waste Materials

No waste materials associated with Option 1 EPMMs were generated during the reporting period.

6.4 Option 2 and 3 EPMMs

Option 2 and 3 EPMMs consist of passive vapor barriers and do not require mechanical operation or maintenance. Option 2 or 3 EPMMs have been installed at the following 11 properties:

- 95R Franklin Street (Option 2)
- 12 Morton Street (Option 3)
- 11 Morton Street (Option 2)
- 4 Morton Street (Option 3)
- 10 Morton Street (Option 3)
- 91-93 Franklin Street (Option 3)
- 17 Knowlton Street (Option 3)
- 32 Knowlton Street (Option 3)
- 34 Knowlton Street (Option 3)
- 19-19A Morton Street (Option 3)
- 166-168 Glen Street (Option 3)

In accordance with the MCP (310 CMR 40.1000) prior to the June 20, 2014 MCP amendments, regulatory closure was achieved with a Class A-3 Response Action Outcome Partial (RAO-P) Statement for several properties with an Option 2 or 3 EPMM. The properties that have achieved a Class A-3 RAO-P are presented in Fig. 6-3. In the amended MCP, the term "Response Action Outcome" has been replaced with "Permanent or Temporary Solution." Subsequent regulatory closure for individual properties with Option 2 or 3 EPMMs will be achieved with Partial PSSs with Conditions. The condition associated with the PSSs with Conditions will be maintenance of the passive EPMM in accordance with an AUL.

6.4.1 163 Glen Street

The commercial property at 163 Glen Street is being redeveloped into residential space by Somerville Community Corporation. The building is not occupied. GEI has coordinated installation of an EPMM in the renovated building as provided in the RAM Plan submitted to MassDEP on June 28, 2018.

RAM activities completed at 163 Glen Street include installation of a vapor barrier and a sub-slab ventilation piping network (piping network) beneath the building, and management of potentially contaminated soil. Soil excavated as part of construction was reused on-site beneath the building foundation slab. To date, no excess soil has been transported off-site. Sub-slab soil vapor sampling points have been installed. One round of sub-slab soil vapor sampling was conducted in February 2018, as described in previous reports. Additional sub-slab soil vapor sampling was conducted in April and November 2019 following significant completion of building envelope renovation to evaluate post-construction sub-slab soil vapor conditions. Indoor air testing was conducted in April and November 2019 following completion of building renovation to evaluate EPMM effectiveness. The soil

vapor and indoor air testing performed in November 2019 included blocking the passive ventilation piping to simulate conditions in the absence of the EPMM.

The results of soil vapor samples collected at 163 Glen Street in April and November 2019 were less than the applicable MassDEP Residential Soil Vapor Screening Values. These results are similar to the results of soil vapor testing performed at the property in April 2007, with only PCE detected at 1.4 $\mu g/m^3$. Indoor air sampling performed in April and November 2019 detected low concentrations of CVOCs (PCE ranging from 0.197 – 0.271 $\mu g/m^3$, and TCE ranging from 0.124 – 0.769 $\mu g/m^3$) at levels that pose NSR for a residential exposure scenario. GEI will perform additional soil vapor and indoor air testing during the next reporting period to continue to evaluate these conditions.

6.4.2 Operation and Monitoring

To confirm the performance of an EPMM, indoor air samples are collected shortly after installation is complete. As identified in the Phase IV FIR/Phase V ROS for Option 2 and 3 EPMMs, following the initial post-installation indoor air sampling, indoor air samples were collected two times per year (including one winter sample) for two consecutive years. In accordance with MassDEP 2016 VI Guidance, GEI has modified the post-installation indoor air sampling for newly installed Option 2 and 3 EPMMs to demonstrate effectiveness:

- If groundwater concentrations are less than two times the Method 1 GW-2 standard, and sub-slab soil gas concentrations are less than two times soil gas screening values, and indoor air concentrations are less than two times threshold values (TVs), GEI will perform 2 rounds of indoor air sampling, with one round occurring during the heating season.
- If groundwater concentrations are greater than two times the Method 1 GW-2 standard, and/or sub-slab soil gas concentrations are greater than two times soil gas screening values, and/or indoor air concentrations are greater than two times TVs, GEI will perform quarterly indoor air sampling, with two rounds occurring during the heating season.

Additional indoor air sampling beyond the first year may be performed based on property-specific conditions. Samples will be analyzed for Site-specific chlorinated VOCs. During indoor air sampling, the condition of the EPMM will be inspected and, if needed, repairs or modifications will be scheduled.

Following the completion of post-installation indoor air sampling, annual inspection and monitoring will include inspecting system components. If needed, repairs or modifications will be scheduled.

A summary of OMM activities performed for Option 2 and 3 EPMMs during this reporting period is presented in Table 6-2.

6.4.3 Efficiency and Effectiveness

For residential buildings, the primary goals for EPMM performance are the reduction of chlorinated VOC concentrations in indoor air to below laboratory reporting limits to the extent feasible, and to achieve a condition of NSR. For commercial buildings, the standard for successful EPMM performance is the reduction of chlorinated VOC concentrations in indoor air to that which constitutes a condition of NSR.

Through December 15, 2019, the results of post-EPMM installation indoor air sampling indicate that the Option 2 or 3 EPMMs currently installed at residential properties have achieved the remedial objectives.

6.4.4 System Maintenance and Modifications

No modifications were made to systems during the reporting period.

6.4.5 Management of Waste Materials

No waste materials associated with Option 2 or 3 EPMMs were generated during the reporting period.

6.5 Activity and Use Limitations

It is anticipated that AULs may be recorded for each property where an EPMM is installed and the property owner executes the AUL. No AULs were recorded during this reporting period.

6.6 Permanent Solution Statements

An evaluation of the MNA program indicates that the groundwater plumes are stable, overall groundwater concentrations of chlorinated VOCs are not increasing, and natural attenuation processes are occurring at the Site which will likely reduce contaminant concentrations in groundwater over time. Previous investigations have also demonstrated that soil vapor plumes are stable. Visible NAPL has not been observed at the Site, and any DNAPL that may be present is not migrating and exists in a stable configuration. The Phase III demonstrated that it is not feasible to eliminate DNAPL at the Site. There are no unpermitted releases of OHM at the Site. Accordingly, all sources of OHM at the Site have been eliminated or controlled to the extent feasible.

The Updated 2015 Method 3 Risk Characterization that ARCADIS prepared was presented in Phase V Status Report No. 8 and RMR No. 23. The Updated 2015 Method 3 Risk Characterization incorporated updated soil, groundwater, and indoor air data sets, and also included updated MassDEP toxicity information, particularly for PCE and TCE. Based on the Updated 2015 Method 3 Risk Characterization, a condition of NSR exists for current and future building occupants at each property within the Site. Based on the Updated 2015 Method 3 Risk Characterization, a condition of NSR does not exist for future construction workers performing excavations at the Property or within the MBTA ROW. The inhalation of excavation air pathway associated with the MassDEP change in TCE toxicity is the main driver of potential risks for construction workers in both of these exposure areas. However, these construction worker risks can and should be managed with a Health and Safety Plan (HASP) that is prepared and implemented prior to subsurface work in these exposure areas.

Based on a demonstration of source control at the Site, and a condition of NSR at individual properties, many of the individual properties are eligible for a Partial PSS in accordance with the MCP (310 CMR 40.1000). The filing of a Partial PSS for an individual property documents the achievement of regulatory closure under the MCP. Therefore, the Phase V provisions do not apply to properties for which a RAO-P or Partial PSS has been submitted.

The properties that have achieved a Partial PSS are shown on Fig. 6-3. A summary of the different classes of Partial PSSs to be submitted in the future for properties at the Site, depending on the property-specific conditions and the type of mitigation, if any, are discussed below.

Active operation and maintenance is required for Option 1 EPMMs. Based on the MCP amendments effective June 20, 2014, a PSS with Conditions can be achieved for properties with an Option 1 EPMM. GEI has initiated communications with the owners of properties with Option 1 EPMMs to discuss implementation of AULs to achieve regulatory closure.

6.6.1 Permanent Solution without Conditions

GEI will prepare a Partial PSS without Conditions for residences where multiple lines of evidence have demonstrated the absence of a soil vapor migration pathway to indoor air and an EPMM is not required. GEI will also prepare Partial PSSs for residences where a Method 3 Risk Characterization, based on multiple rounds of sampling, indicated that concentrations of chlorinated VOCs in indoor air constitute NSR, and the feasibility evaluation demonstrated that installation of an EPMM was infeasible. In addition, GEI will prepare a Partial PSS without Conditions for the portion of the Site occupied by public rights-of-way. The properties that have achieved a Partial PSS without Conditions are shown in Fig. 6-3.

6.6.2 Permanent Solution with Conditions

GEI will attempt to record an AUL at each property with an Option 1, 2 or 3 EPMM to maintain the integrity of the EPMM. After an AUL is recorded, GEI will prepare a Partial PSS with Conditions for residential properties with Option 1, 2 or Option 3 EPMMs where 2 years of post-installation indoor air samples have demonstrated that the EPMM is effective. Following the post-installation indoor air sampling, GEI will continue annual inspections of Option 1, 2 and 3 EPMMs as provided for in the Phase IV RIP. The properties that have achieved a Partial PSS with Conditions are shown in Fig. 6-3. If a property owner does not execute an AUL, inspections will continue as Phase V activities.

6.7 Future Phase V Activities

6.7.1 EPMM Operation and Monitoring

The results of post-EPMM installation indoor air sampling indicate that the Option 1, 2, and 3 EPMMs installed at the Site have achieved the remedial objectives.

GEI will continue to conduct annual OMM activities for installed EPMMs where sufficient indoor air sampling has been conducted, but not repeat indoor air testing, to confirm it is achieving the remedial design objectives.

GEI has been communicating with property developers for 103 and 105 Washington Street, and 31 Tufts Street. If new EPMMs are installed, GEI will plan with the property owners to continue the operation and monitoring program outlined in Section 6.2 and Section 6.3.

6.7.2 EPMM Modifications

As discussed in Section 6.1, the properties located at 103 and 105 Washington Street are being redeveloped into commercial and residential spaces. The buildings at both properties have been demolished and the AEPMM previously at 103 Washington Street has been removed.

As discussed in Section 6.3.3, remote telemetry has been installed at each Option 1 EPMM except for 9 Knowlton Street. The owner of 9 Knowlton Street has been unresponsive to telemetry access request letters, telephone calls, and property visits. Therefore, it is infeasible to install telemetry at the property.

6.7.3 EPMM Closure Sampling

As discussed in Section 6.3.2, GEI collected indoor air samples from 13 Knowlton Street in February 2018, March 2019, and November 2019 to demonstrate that the Option 1 EPMM is not required to maintain a condition of NSR.

Based on the results of the Option 1 EPMM closure sampling, GEI will continue to evaluate the need for an AEPMM to achieve a condition of NSR at 13 Knowlton Street.

6.7.4 Installation of New EPMMs

GEI is communicating with property developers at 103 and 105 Washington Street, and 31 Tufts Street concerning potential vapor mitigation controls that may be incorporated into the new proposed buildings at those properties, if necessary.

6.7.5 AULs and Permanent Solutions

As discussed in Section 6.6, the source of contamination at the Site has been controlled. If post-installation indoor air sampling at a property demonstrates that an EPMM continues to achieve the remedial objectives, then that property is eligible for a Partial PSS with Conditions.

GEI anticipates recording AULs for each property where an EPMM is installed and a Partial PSS with Conditions is to be issued.

Once the AULs are recorded, GEI will prepare a Partial PSS with Conditions for the properties with EPMMs. As discussed in Section 6.6.1, GEI will prepare Partial PSSs for those properties that did not require mitigation.

7. 60 Tufts Street

7.1 Background

60 Tufts Street is a 17-unit condominium building adjacent to the Property. The mitigation system at 60 Tufts Street was designed and constructed as an SSDS. The SSDS includes 12 vertical sub-slab extraction points and 2 horizontal foundation wall extraction points connected to 2 collection headers and a 5-horsepower regenerative blower with pressure gauges, controls, and particulate filter housed in a locked metal enclosure. GEI began operation of the SSDS on April 24, 2009. A discharge pipe extends from the blower through a parking garage deck and discharges above the roofline of the building.

On July 24, 2015, remote telemetry was installed at 60 Tufts Street. The remote telemetry consists of one radio node and one pressure switch connected to the blower to send notification of a system shut down remotely to the wireless remote monitoring hub located at the Property.

The system does not include off-gas treatment. Based upon the measured flow rate and VOC concentrations, the annual discharge rate of VOCs from the system will be significantly less than 100 lbs per year; therefore, no off-gas treatment is required per MassDEP Policy No. WSC-94-150.

7.2 Remedial Objectives

The objectives of the SSDS at 60 Tufts Street are to:

- Eliminate or mitigate, to the extent feasible, the potential soil vapor migration pathway to indoor air.
- Achieve a condition of NSR for occupants of the condominium building.

7.3 Inspection and Monitoring

The system has been monitored in accordance with the requirements and schedule in the Phase IV RIP, and in accordance with the requirements and schedule presented in subsequent Phase IV Status Reports, and the Phase IV FIR/Phase V ROS.

Operational parameters for the system (e.g., flow rate, vacuum) were historically monitored monthly and indoor air quality in Units 1, 4, and 5 and sub-slab conditions were monitored for 2 years following installation of the EPMM. The Phase IV RIP provided for ongoing annual indoor air sampling. However, post-EPMM indoor air sampling and visual

inspections confirmed that the EPMM at 60 Tufts Street has been constructed in accordance with the Phase IV RIP, and has achieved the remedial design objectives. Accordingly, GEI no longer conducts annual indoor air testing, but has continued to monitor operational parameters of the system.

Once remote telemetry was installed on the system on July 24, 2015, GEI began to perform monitoring of system parameters on a quarterly basis in July 2015. Inspection and monitoring at 60 Tufts Street was performed two times from June 2019 to December 2019. A summary of monitoring activities conducted during this reporting period is provided in Table 7-1 and the Field Monitoring Forms are provided in Appendix F.

7.4 Performance Efficiency and Effectiveness

The SSDS monitoring data show that the sub-slab vacuum field generated by the SSDS influences nearly the entire floor slab area. Indoor air samples were collected in Units 1, 4, and 5, which are the units closest to the ground floor, for 2 years after EPMM installation. The indoor air testing results indicated that a condition of NSR has been achieved for building occupants at 60 Tufts Street and the soil vapor migration pathway to indoor air has been mitigated to the extent feasible.

7.4.1 AEPMM Shutdown Testing

On March 20, 2018, a shutdown valve was installed on the SSDS riser pipe at 60 Tufts Street. To simulate conditions without operation of the AEPMM, the SSDS fan was turned off and the shutdown valve was closed for one week beginning on April 17, 2019, prior to collecting soil vapor and indoor air samples. After the indoor air sampling was completed, the shutdown valve was opened, and the blower was reactivated. The results of the indoor air and soil vapor sampling were presented in Phase V Status Report #16.

GEI will perform additional closure sampling to continue evaluating if operation of the AEPMM is required to maintain a level of NSR. The next round of indoor air sampling will be conducted during the winter of 2020.

7.5 Management of Waste Materials

Infrequently, condensate in system piping may accumulate in the cleanout drains for the sub-surface header pipes, or in the moisture separator installed as part of the blower assembly. If observed, the liquid will be drained and dispensed to the bare ground surface at 60 Tufts Street so that it can infiltrate into the subsurface within the Site boundary.

7.6 System Modifications

No system modifications were made during the monitoring period.

7.7 Future Phase V Activities

The system is achieving the remedial design objectives and OMM activities will continue. To confirm system performance, GEI will continue to monitor operational parameters and sub-slab conditions (e.g., flow rate, vacuum) on a quarterly basis. During monitoring events, GEI will also perform maintenance tasks as needed, which may include documenting that the blower is in operation, draining accumulated water from the moisture separator or collection headers, changing the filter element for the blower, changing the batteries in the auto-dialer, and correcting any issues observed during routine inspection of system components. GEI will implement any modifications to the telemetry system and VFD that may be required.

7.7.1 EPMM Closure Sampling

Based on pre-EPMM indoor air testing at 60 Tufts Street, and changes to the toxicological characteristics for PCE, the EPMM may not be required to maintain a condition of NSR. GEI has communicated with the owners and occupants of 60 Tufts Street, who are amenable to EPMM closure indoor air testing.

In accordance with MassDEP's 2016 VI Guidance, GEI initiated a closure indoor air testing program at 60 Tufts Street during spring 2018, which is:

- Installing a shutdown valve on March 20, 2018 on the ventilation piping of the EPMM;
- Performing indoor air sampling at 60 Tufts Street in July 2018 and April 2019;
- Shutting down the SSDS fan for 7 days prior to indoor air sampling;
- Keeping the shutdown valve closed for 7 days prior to sampling to effectively prevent venting; and
- Following each sampling event, returning the system to normal operating conditions.

Based on the results of the Option 1 EPMM closure sampling, GEI will re-evaluate the need for an EPMM to achieve a condition of NSR.

7.7.2 Impact of 2014 MCP Amendments for AEPMMs

The MCP amendments effective June 20, 2014 include requirements for AEPMMs implemented as part of ROS (310 CMR 40.1026). As discussed above, an operating regime was included in the Phase IV FIR/Phase V ROS submitted on August 4, 2011, which included an OMM plan for the system and the existing telemetry that provides shutdown notification to GEI. As described above, remote telemetry was installed at 60 Tufts Street in July 2015.

The operating regime in the Phase IV FIR/Phase V ROS did not identify the longest duration of a shutdown that would be consistent with a level of exposure that does not pose an IH and that poses NSR, which was a new requirement under the MCP amendments. In accordance with the MCP (310 CMR 40.1026[3][e]), and as presented in Status Report No. 7 and RMR No. 22, the longest duration of a shutdown that would be consistent with a level of exposure that does not pose an IH and that poses NSR is 52 years for the 60 Tufts Street property.

7.7.3 Regulatory Closure

As discussed previously in Section 6.5, a Permanent Solution with Conditions can be achieved for properties where an AEPMM has achieved the remedial objectives, an AUL has been recorded for the property, and telemetry is installed. A Partial Permanent Solution Statement with Conditions may be submitted to achieve regulatory closure for 60 Tufts Street if the condominium association for the property executes an AUL. If the last round of shutdown testing demonstrates that an AEPMM no longer is required to maintain a condition of NSR, then a Partial Permanent Solution may be achievable without an AUL.

8. 50 Tufts Street Property

8.1 Background

The remedial system at the Property was originally designed and constructed as an SSDS that includes 22 sub-slab extraction points inside the building, a 15-horsepower regenerative blower with pressure gauges, controls, and particulate filter, and three 2,000-lb activated carbon absorbers operated in series for off-gas treatment. As part of the SSDS installation, the building slab was sealed to minimize vapor transmission through the slab. The cracks and joints in the building slab were filled with flexible sealant and a two-part epoxy coating was applied to the surface of the slab. GEI began operating the SSDS on April 30, 2007.

In July and August 2007, SVE components were added to the system as part of the CRA to address residual VOCs in soil. The SVE system includes seven SVE points installed below the pavement in the north and south parking lots on the Property. The SSDS and the SVE system rely upon shared equipment, including the piping manifold, blower assembly, and off-gas treatment units. GEI began operating the SVE system on August 22, 2007.

In April 2015, a wireless telemetry hub was installed at the Property. The telemetry hub receives telemetry notification from the other AEPMMs at the Site. A radio node was also installed and connected to monitor the 50 Tufts Street system.

8.2 Remedial Objectives

The design objectives of the combined SSDS/SVE system were to:

- Eliminate or mitigate, to the extent feasible, the soil vapor migration pathway to indoor air.
- Achieve a condition of NSR for a commercial full-time worker.
- Reduce the mass of contaminants in the vadose zone.
- Control the potential migration of soil vapor from the Property to the 60 Tufts Street property.

8.3 Inspection and Monitoring

The system has been monitored in accordance with the requirements and schedule in the Phase IV RIP. Monitoring of the system was historically performed monthly; however, once telemetry was installed on the system, GEI began performing quarterly monitoring in

July 2015. Operational parameters for the system (e.g., flow rate, vacuum, off-gas treatment efficiency) were monitored five times from June 2019 to December 2019. GEI also measures the vapor pressure of sub-slab extraction points and monitoring points periodically. GEI uses these sub-slab pressure measurements to confirm system effectiveness. The pipe and hose connections on the pressure side of the blower are examined during monitoring visits for potential leaks. Leaks, if encountered, are corrected immediately. Carbon change-outs are scheduled based on carbon tank monitoring data to maximize VOC adsorption while maintaining compliance with regulatory requirements regarding discharge of VOCs to the atmosphere. Procedures to address potential spills of spent activated carbon during carbon change-outs have been developed and are presented in the system OMM Plan provided in the Phase IV RIP.

GEI performs monitoring for off-gas treatment efficiency monthly. Based on that monitoring, the system off-gas for the combined SSDS/SVE system was within permissible limits during the reporting period. A summary of monitoring activities during this reporting period is provided in Table 8-1, and Field Monitoring Forms are provided in Appendix F.

8.4 Performance Efficiency and Effectiveness

The SSDS monitoring data show that the sub-slab vacuum field generated by the SSDS covers most of the building slab area. In conjunction with the physical sealing of the slab, this indicates the soil vapor migration pathway to indoor air is being mitigated by the system. Based on indoor air testing results collected since the combined system has been in operation, a condition of NSR for full-time commercial workers has been achieved for the building at the Property.

The SVE system monitoring data show that vacuum influence from the SVE points in the south parking lot extends approximately 30 feet south of the building and from the SVE points in the north parking lot extends onto 60 Tufts Street.

Three influent and two effluent samples from the carbon treatment system were collected in May 2007, June 2007, and March 2008. The results of this sampling were compared with PID field measurements to estimate the total mass of VOCs removed from soil vapor between April 2007 and May 2014. However, GEI collected more recent influent and effluent samples in February 2014. The results of the February 2014 influent and effluent sampling are a better indicator of current system conditions, and were used to estimate the total mass of VOCs removed from soil vapor based on PID field measurements beginning in June 2014. Monitoring data from both the SSDS and SVE components through November 22, 2019 show that approximately 9,163 lbs (approximately 680 gallons) of VOCs have been removed from the vadose zone at the Property (Fig. 8-1).

8.5 Management of Waste Materials

Infrequently, condensate in system piping may accumulate in the moisture separator installed as part of the blower assembly. If observed, the liquid is drained from the moisture separator and dispensed to the bare ground surface at the Property so that it can infiltrate into the subsurface within the Site boundary.

Based on the previous quantities of spent carbon generated by the system, a 2017 Hazardous Waste Report was submitted to MassDEP on February 27, 2018, identifying the Property as a Large Quantity Generator (LQG) facility. GEI operated the system as an LQG in 2017. GEI will submit the next biennial Hazardous Waste Report in March 2020.

No remediation waste was generated during this reporting period.

8.6 System Modifications

On April 4, 2019, GEI observed a new telemetry contractor (Integrasense of Wilmington, MA) upgrade the telemetry system. Upgrades at the telemetry hub included: hardware upgrades, upgrading the connection from 2G to 3G/4G LTE, installation of a differential pressure transmitter, and software upgrades to comply with evolving MassDEP telemetry requirements. Software upgrades on the telemetry system were completed during this reporting period.

8.7 Future Phase V Activities

The system is achieving the remedial design objectives. Phase V ROS OMM activities will continue in accordance with the requirements and schedule set forth in the Phase IV RIP.

8.7.1 Telemetry for AEPMMs

The MCP amendments effective June 20, 2014 include requirements for AEPMMs implemented as part of a ROS (310 CMR 40.1026). As discussed above, an operating regime was included in the Phase IV FIR/Phase V ROS submitted on August 4, 2011, which included an OMM plan for the system. Remote telemetry was installed at the Property in April 2015.

The operating regime in the Phase IV FIR/Phase V ROS did not identify the longest duration of a shutdown that would be consistent with a level of exposure that does not pose an IH and that poses NSR, which is a requirement under the MCP amendments (310 CMR 40.1026[3][e]). Indoor air sampling performed at 50 Tufts Street by GeoInsight in September 2006 identified PCE concentrations ranging from 550 to 800 micrograms per cubic meter ($\mu g/m^3$), and TCE concentrations ranging from 16 to 150 $\mu g/m^3$. In accordance

with the MassDEP Fact Sheet "*TCE Toxicity Information: Implications for Chronic and Shorter-Term Exposure*," dated March 27, 2014, the pre-EPMM concentrations in the building would pose an IH even over a short time period, such as a matter of days. However, GEI performed indoor air sampling during an unscheduled SSDS/SVE system shutdown in March 2015. The March 2015 indoor air concentrations did not pose an IH, and TCE was not detected during the March 2015 indoor air sampling. Based on system monitoring logs, the system was likely down for slightly less than 1 month during the March 2015 shut down. This information indicates that an IH would not be present during a minor shut down of the 50 Tufts Street system. Because the building is currently occupied, sampling cannot be conducted after the system has been shut down for a full 60 days or longer, so the maximum duration for a system shutdown that might pose an IH is not known now.

GEI will continue to operate the AEPMM at 50 Tufts Street.

9. Monitored Natural Attenuation

9.1 MNA Program Objectives

MNA is part of the remedial strategy to reach a Permanent Solution for the Site. GEI has implemented an MNA program to confirm on-going natural attenuation is occurring at the Site. The MNA program is described in the MNA OMM Plan presented in the Phase IV RIP. The primary elements of the MNA program include:

- Plume Stability Monitoring: A groundwater sampling plan to monitor overburden and bedrock groundwater plume concentrations through time to confirm that the groundwater plumes are stable, and that overall groundwater concentrations of chlorinated VOCs are not increasing.
- Natural Attenuation Evaluation: An evaluation of overburden and bedrock groundwater plume concentrations through time for indications of the presence and rate of natural attenuation processes.

9.2 MNA Activities

GEI conducted the following MNA activities during the reporting period:

- Groundwater Level Measurements: GEI measured groundwater levels at monitoring wells shown in Table 9-1.
- Groundwater Sampling: GEI collected groundwater samples from 4 monitoring wells in November 2019, and submitted them for chemical testing for VOCs by EPA Method 8260B. The sampling locations are shown in Fig. 4-1, the chemical testing results are shown in Table 4-2, and the laboratory data reports are in Appendix C.

GEI evaluated the groundwater chemical testing results collected during MNA activities to update and supplement the plume stability monitoring and natural attenuation evaluation. During this reporting period, semi-annual groundwater sampling was conducted by GEI at 4 monitoring wells shown in Fig. 4-1.

Based on an analysis of the Mann-Kendall statistical trend test results, which incorporates the additional groundwater testing data, the PCE, TCE, and TCA groundwater plumes continue to be stable.

GEI has been monitoring concentration fluctuations in groundwater PCE concentrations in monitoring wells MW122 and MW112A, and TCE concentrations in monitoring wells MW118D and MW121D. The concentrations decreased slightly in MW122 and MW112A, and increased slightly in MW118D and MW121D, during the last reporting period. These results are within a range of fluctuation that is consistent with continuing plume stability, particularly when considered in context with prior groundwater results from all monitoring wells. GEI will perform additional groundwater sampling of these monitoring wells in the spring of 2020.

To facilitate construction of the new Washington Street Pump Station, located on the MBTA's property on the south side of Washington Street, the MBTA pumped groundwater to dewater the excavation. According to the MBTA, PCE concentrations in the dewatering effluent increased as pumping continued. The MBTA's pumping therefore induced changes in the distribution of PCE in shallow groundwater at the southern boundary of the Site. Chlorinated VOCs were not detected in shallow groundwater near the new Washington Street Pump Station prior to the dewatering pumping (KE-117 in 2012). In February 2014, to simulate dewatering conditions prior to construction, Kleinfelder conducted pumping at KE-117 and then collected a groundwater sample for testing. The concentration of PCE was 760 µg/l in a groundwater sample collected under pumping conditions. After the pumping ceased, the concentration of PCE quickly decreased to 4.3 µg/l (April 2014). Based on this dewatering simulation at monitoring well KE-117, and subsequent Site-wide groundwater monitoring, the shallow groundwater concentrations likely reverted to pre-pumping conditions following the completion of groundwater dewatering.

Based on the results of Site-wide groundwater sampling from the wells monitored as part of the MNA program, these localized changes at the southern boundary during temporary dewatering have not affected the overall stability of the plumes.

10. Remedial Monitoring Report No. 32

Remedial Monitoring Report No. 32, documenting OMM activities for active remedial systems at the Site, is presented in the BWSC-108A and 108B Transmittal Forms in Appendix A.

11. References

MassDEP (1994). "Off-gas Treatment of Point-Source Remedial Air Emissions," Massachusetts Department of Environmental Protection, Policy #WSC-94-150, dated 1994.

GEI (2006). IRA Status Report No. 1, 50 Tufts Street, Somerville, MA, RTNs 3-23246, 3-24358 and 3-24376, dated May 8, 2006.

GEI (2006). IRA Status Report No. 2 and Plan Modification No. 3, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated November 13, 2006.

GEI (2007). IRA Plan Modification No. 4, 50 Tufts Street, Somerville, MA, RTNs 3-23246 and 3-26114, dated February 22, 2007.

GEI (2007). IRA Plan Modification No. 1, 50 Tufts Street, Somerville, MA, RTN 3-26114, dated April 12, 2007.

GEI (2007). IRA Plan Modification No. 5, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated May 5, 2007.

GEI (2007). IRA Status Report No. 3, 50 Tufts Street, Somerville, MA, RTN 3-23246 & IRA Status Report No. 1 RTN 3-26114, dated May 10, 2007.

GEI (2007). Remedial Monitoring Report No. 1, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated August 30, 2007.

GEI (2007). Monthly Remedial Monitoring Report No. 2, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated August 30, 2007.

GEI (2007). Monthly Remedial Monitoring Report No. 3, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated August 30, 2007.

GEI (2007). Monthly Remedial Monitoring Report No. 4, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated August 30, 2007.

GEI (2007). IRA Plan Modification No. 7, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated October 11, 2007.

GEI (2007). IRA Plan Modification No. 8, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated October 11, 2007.

GEI (2007). Monthly Remedial Monitoring Report No. 5, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated October 19, 2007.

GEI (2007). Monthly Remedial Monitoring Report No. 6A, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated October 31, 2007.

GEI (2007). Monthly Remedial Monitoring Report No. 6B, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated November 8, 2007.

GEI (2007). Monthly Remedial Monitoring Report No. 7A, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated November 8, 2007.

GEI (2007). Monthly Remedial Monitoring Report No. 7B, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated November 8, 2007.

GEI (2007). IRA Status Report No. 4, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated November 9, 2007.

GEI (2008). IRA Status Report No. 5 and Remedial Monitoring Report (RMR) No. 8, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated May 12, 2008.

GEI (2008). Phase II Comprehensive Site Assessment (CSA), Method 3 Risk Characterization, and Phase III Remedial Action Plan (RAP), 50 Tufts Street, Somerville, MA, RTN 3-23246, dated July 14, 2008.

GEI (2008). IRA Status Report No. 6 and Remedial Monitoring Report (RMR) No. 9, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated November 10, 2008.

GEI (2009). IRA Status Report No. 7 and Remedial Monitoring Report (RMR) No. 10, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated May 11, 2009.

GEI (2009). Phase IV Remedy Implementation Plan (RIP), 50 Tufts Street, Somerville, MA, RTN 3-23246, dated May 11, 2009.

GEI (2009). IRA Completion Report and Remedial Monitoring Report (RMR) No. 11, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated May 11, 2009.

GEI (2010). Phase IV Status Report No. 1 and Remedial Monitoring Report No. 12, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated February 8, 2009.

GEI (2010). Phase IV Status Report No. 2 and Remedial Monitoring Report No. 13, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated August 4, 2010.

GEI (2011). Phase IV Status Report No. 3 and Remedial Monitoring Report No. 14, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated February 11, 2011.

GEI (2011). Immediate Response Action Completion Report Amendment, RTN 3-23246, 50 Tufts Street Site, Somerville, Massachusetts, dated April 1, 2011.

GEI (2011). Phase IV Final Inspection Report, Remedial Monitoring Report No. 15, and Phase V Remedy Operation Status Report. 50 Tufts Street, Somerville, Massachusetts, dated August 4, 2011.

GEI (2012). Phase V Status Report No. 1 and Remedial Monitoring Report No. 16, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated February 10, 2012.

GEI (2012). Phase V Status Report No. 2 and Remedial Monitoring Report No. 17, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated August 4, 2012.

GEI (2013). Phase V Status Report No. 3 and Remedial Monitoring Report No. 18, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated February 8, 2013.

GEI (2013). Phase V Status Report No. 4 and Remedial Monitoring Report No. 19, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated August 2, 2013.

GEI (2014). Phase V Status Report No. 5 and Remedial Monitoring Report No. 20, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated February 10, 2014.

GEI (2014). Phase V Status Report No. 6 and Remedial Monitoring Report No. 21, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated August 1, 2014.

GEI (2014). Release Abatement Measure Completion Report for 34 Knowlton Street, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated October 13, 2014.

GEI (2015). Phase V Status Report No. 7 and Remedial Monitoring Report No. 22, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated February 2, 2015.

GEI (2015). Phase V Status Report No. 8 and Remedial Monitoring Report No. 23, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated August 3, 2015.

GEI (2016). Phase V Status Report No. 9 and Remedial Monitoring Report No. 24, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated February 2, 2016.

GEI (2016). Phase V Status Report No. 10 and Remedial Monitoring Report No. 25, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated August 3, 2016.

GEI (2017). Phase V Status Report No. 11 and Remedial Monitoring Report No. 26, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated February 2, 2017.

GEI (2017). Phase V Status Report No. 12 and Remedial Monitoring Report No. 27, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated August 2, 2017.

GEI (2017). Phase V Status Report No. 13 and Remedial Monitoring Report No. 28, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated February 2, 2018.

GEI (2018). Phase V Status Report No. 14 and Remedial Monitoring Report No. 29, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated August 2, 2018.

GEI (2019). Phase V Status Report No. 15 and Remedial Monitoring Report No. 30, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated February 5, 2019.

GEI (2019). Phase V Status Report No. 16 and Remedial Monitoring Report No. 32, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated August 2, 2019.

Tables

Table 4-1. Summary of Groundwater Sampling Activities
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sampling Event and Date	Sampled Locations	QA/QC Samples
Quarterly Groundwater Sampling		
5/23/2006	SH-MW1, SH-MW2, SH-MW3, GEO-1, GEO-2, MW-1, MW-	NA
5/24/2006	GEO-3, GEO-4, GEO-5, GEO-6, MW101, MW102 MW103,	Field Duplicate of GEO-3
5/25/2006	SH-4	NA
Groundwater Sampling		
8/7/2006	MW103	NA
Quarterly Groundwater Sampling		
10/4/2006	SH-MW1, SH-MW2, SH-MW3, GEO-3 GEO-4, GEO-5 and	Field Duplicate MW900 (GEO-3)
10/5/2006	GEO-1, GEO-2, MW101, MW102, MW103, MW104 and	NA
Quarterly Groundwater Sampling		
1/16/2007	SH-MW1, SH-MW2, GEO-3, GEO-4, GEO-5, GEO-6,	Field Duplicate MW900 (GEO-6)
1/17/2007	SH-MW3, MW-1, MW-3, GEO-1 and GEO-2	Field Duplicate MW800 (GEO-1)
1/18/2007	MW103, MW106, MW107, MW108, MW109, MW110 and	NA
Groundwater Sampling		
2/20/2007	MW113 and MW114	NA
3/23/2007	MW112A, MW115R AND MW116	NA
Quarterly Groundwater Sampling		
4/12/07	SHMW1, SHMW3, GEO1, GEO2 and MW113	NA
4/13/07	GEO3, MW101, MW102, MW103, MW104, MW106,	Field Duplicate MW900 (MW101)
4/16/07	SHMW2, GEO4, GEO5, GEO6, MW105, MW108, MW109,	Field Duplicate MW901 (GEO6)
5/23/07	MWCS1	NA
Quarterly Groundwater Sampling		
7/18/2007	MW102, MW107, MW108, MW11, MW112A, MW113, MW114, MW115R, M2116 and MW117S	Sample from MW102 was used for MS/MSD Field Duplicate MW900 (MW113) Field Duplicate MW901 (MW116)
7/19/2007	SHMW2, MW104, MW105, MW106, MW117T, MW117D,	NA
7/20/2007	MW118S, MW118T and MW118D	NA
Groundwater Sampling		
8/22/07	MW119S, MW119T, MW120S and MW120D	NA
8/30/07	MW118S, MW118T and MW118D	NA
Quarterly Groundwater Sampling		
10/10/2007	MW102, MW105, MW106, MW107, MW108, MW111, MW112A, MW113, MW114, MW115	Sample from MW102 was used for MS/MSD Field Duplicate MW900 (MW113)
10/11/2007	MW117T, MW117D, MW118S, MW118T, MW118D	NA
10/12/2007	MW116, MW119S, MW119T, MW120S, MW120D, MW201,	Field Duplicate MW901 (MW116)
10/15/2007	MW104, MW117S	NA
10/22/2007	MW121S, MW121D	NA

General Notes:
1. NA = not applicable.
2. QA/QC = quality assurance/quality check.
3. MS/MSD = matrix spike/matrix spike duplicate.
4. VOC = volatile organic compound.
5. All groundwater samples submitted for VOC testing. Selected samples collected in January 2007, April 2010, April 2011, April 2012, April 2013, April 2014, May 2014, June 2014, April 2015, April 2016, April 2017 and April 2018 were also submitted for natural attenuation parameter testing.

Table 4-1. Summary of Groundwater Sampling Activities
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sampling Event and Date	Sampled Locations	QA/QC Samples
Quarterly Groundwater Sampling		
1/9/2008	MW105, MW115	NA
1/10/2008	MW102, MW106, MW107, MW108, MW111, MW112A	Sample from MW102 was used for MS/MSD
1/11/2008	MW104, MW113, MW114, MW116, MW117S, MW118S, MW201, MW202	Field Duplicate MW900 (MW113) Field Duplicate MW901 (MW116)
1/15/2008	MW117T, MW117D, MW118T, MW119S, MW120S,	NA
1/16/2008	MW118D, MW119T	NA
1/17/2008	MW120D	NA
Groundwater Sampling		
1/30/2008	MW122	NA
Quarterly Groundwater Sampling		
4/15/2008	GEO-1, SH-MW3, MW3, MW104, MW113, MW116, MW201, MW202, MW203	Field duplicate MW113 (MW900) Field duplicate MW116 (MW901)
4/16/2008	MW117S, MW117T, MW117D, MW118T, MW118D,	NA
4/17/2008	MW102, MW106, MW107, MW108, MW109, MW111, MW112A, MW114, MW115R, MW120D, MW121S,	Sample from MW102 was used for MS/MSD
4/18/2008	MW105	NA
Quarterly Groundwater Sampling		
7/14/2008	MW105, MW112A, MW121S, MW121D, MW122	Field duplicate MW112A (MW900) Field duplicate MW121D (MW901)
7/15/2008	GEO-1, GEO-2, MW-3, MW104,MW118S, MW118T, MW118D, MW119S, MW119T, MW120S, MW120D,	Sample from MW104 was used for MS/MSD
7/16/2008	MW116, MW117S, MW117T, MW117D, MW118D	NA
Quarterly Groundwater Sampling		
10/21/2008	MW104, GEO-1, GEO-2 MW116, MW117S, MW117T, MW117D, MW118S, MW118T, MW118D, MW202, MW-3	Sample from MW104 was used for MS/MSD
10/22/2008	MW105, MW112A, MW119S, MW119T, MW120S, MW120D, MW121S, MW121D, MW122	Field duplicate MW112A (MW901) Field duplicate MW121D (MW900)
Quarterly Groundwater Sampling		
4/15/2008	GEO-1, SH-MW3, MW3, MW104, MW113, MW116, MW201, MW202, MW203	Field duplicate MW113 (MW900) Field duplicate MW116 (MW901)
4/16/2008	MW117S, MW117T, MW117D, MW118T, MW118D,	NA
4/17/2008	MW102, MW106, MW107, MW108, MW109, MW111, MW112A, MW114, MW115R, MW120D, MW121S,	Sample from MW102 was used for MS/MSD
4/18/2008	MW105	NA
Quarterly Groundwater Sampling		
7/14/2008	MW105, MW112A, MW121S, MW121D, MW122	Field duplicate MW112A (MW900) Field duplicate MW121D (MW901)
7/15/2008	GEO-1, GEO-2, MW-3, MW104,MW118S, MW118T, MW118D, MW119S, MW119T, MW120S, MW120D,	Sample from MW104 was used for MS/MSD
7/16/2008	MW116, MW117S, MW117T, MW117D, MW118D	NA
Quarterly Groundwater Sampling		
10/21/2008	MW104, GEO-1, GEO-2 MW116, MW117S, MW117T, MW117D, MW118S, MW118T, MW118D, MW202, MW-3	Sample from MW104 was used for MS/MSD
10/22/2008	MW105, MW112A, MW119S, MW119T, MW120S, MW120D, MW121S, MW121D, MW122	Field duplicate MW112A (MW901) Field duplicate MW121D (MW900)

General Notes:
1. NA = not applicable.
2. QA/QC = quality assurance/quality check.
3. MS/MSD = matrix spike/matrix spike duplicate.
4. VOC = volatile organic compound.
5. All groundwater samples submitted for VOC testing. Selected samples collected in January 2007, April 2010, April 2011, April 2012, April 2013, April 2014, May 2014, June 2014, April 2015, April 2016, April 2017 and April 2018 were also submitted for natural attenuation parameter testing.

Table 4-1. Summary of Groundwater Sampling Activities
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sampling Event and Date	Sampled Locations	QA/QC Samples
Quarterly Groundwater Sampling		
1/12/2009	MW105, MW112A, MW121S, MW121D, MW122	Field duplicate MW112A (MW900) Field duplicate MW121D (MW901)
1/13/2009	GEO-1, GEO-2, MW117S, MW117T, MW117D, MW119S,	NA
1/14/2009	MW104, MW-3, MW116, MW118S, MW118T, MW118D	Sample from MW104 was used for MS/MSD
Quarterly Groundwater Sampling		
4/13/2009	GEO-1, GEO-2, MW105, MW112A, MW119S, MW119T, MW121S, MW121D, MW122	Field duplicate MW121D (MW900) Field duplicate MW112A (MW901)
4/14/2009	MW-3, MW104, MW117S, MW117T, MW117D, MW118T,	NA
4/15/2009	MW102, MW116, MW118S	NA
Quarterly Groundwater Sampling		
7/14/2009	MW105, MW112A, MW116, MW118T, MW121S, MW121D, MW202	Field duplicate MW121D (MW900) Field duplicate MW112A (MW901)
7/15/2009	GEO-1, GEO-2, MW-3, MW104,MW117S, MW117T, MS117D, MW118S, MW118D, MW119S, MW119T,	Sample from MW104 was used for MS/MSD
Quarterly Groundwater Sampling		
10/14/2009	GEO-1, GEO-2, MW104, MW105, MW112A, MW116, MW117S, MW117D, MW118S, MW118D, MW121S,	Field duplicate MW112A (MW900) Field duplicate MW118D (MW901)
10/15/2009	MW119T, MW119S, MW120S, MW120D, MW118T	Sample from MW104 was used for MS/MSD
10/16/2009	MW117T, MW3	
Annual Groundwater Sampling		
4/12/2010	MW104, MW105, MW112A, MW118S, MW118T, MW118D, MW121S, MW121D, MW122, MW202	Field duplicate MW112A (MW900) Sample from MW104 was used for MS/MSD
4/13/2010	GEO-1, GEO-2, SH-MW3, MW116, MW117S, MW117T, MW117D, MW119S, MW119T, MW120S, MW120D	Field duplicate MW116 (MW901)
Semi-Annual Groundwater Sampling		
10/27/2010	MW112A, MW122	NA
Annual Groundwater Sampling		
4/20/2011	MW105, MW112A, MW117D, MW118S, MW118T,	Field duplicate MW112A (MW900)
4/21/2011	GEO-2, SH-MW3, MW104, MW116, MW117S, MW117T	Field duplicate MW116 (MW901) Sample from MW104 was used for MS/MSD
4/22/2011	GEO-1, MW119S, MW119D, MW120S, MW120D, MW202	
Semi-Annual Groundwater Sampling		
11/16/2011	MW112A, MW122	NA
Annual Groundwater Sampling		
4/16/2012	SH-MW-3, MW112A, MW117S, MW117T, MW117D, MW118D, MW119S, MW119T, MW120S, MW120D, MW121S, MW121D	Field duplicate MW112A (MW900)
4/17/2012	GEO-1, MW104, MW105, MW116, MW118T, MW122, MW202	Field duplicate MW116 (MW901) Sample from MW104 was used for MS/MSD

General Notes:
1. NA = not applicable.
2. QA/QC = quality assurance/quality check.
3. MS/MSD = matrix spike/matrix spike duplicate.
4. VOC = volatile organic compound.
5. All groundwater samples submitted for VOC testing. Selected samples collected in January 2007, April 2010, April 2011, April 2012, April 2013, April 2014, May 2014, June 2014, April 2015, April 2016, April 2017 and April 2018 were also submitted for natural attenuation parameter testing.

Table 4-1. Summary of Groundwater Sampling Activities
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sampling Event and Date	Sampled Locations	QA/QC Samples
Semi-Annual Groundwater Sampling		
11/12/2012	MW112A, MW118D, MW121D, MW122	NA
Annual Groundwater Sampling		
4/23/2013	SH-MW-3, MW105, MW117T, MW119S, MW119T, MW120S, MW120D, MW121S, MW121D, MW122, MW202	NA
4/24/2013	GEO-1, MW104, MW112A, MW116, MW117S, MW117D, MW118S, MW118T, MW118D	Field duplicate MW116 (MW900) Field duplicate MW112A (MW901) Sample from MW104 was used for MS/MSD
5/1/2013	GEO-2	
Semi-Annual Groundwater Sampling		
11/18/2013	MW112A, MW118D, MW121D, MW122	NA
Kleinfelder Groundwater Sampling		
2/6/2014	KE-114-140206, KE-115-140206, KE-116-140206, KE-117-140206, MW-SR-140206, WashSW-140206	Sample from WashSW-140206 was a grab sample from the base of an open excavation.
4/8/2014	KE-202D, KE-202S	NA
4/9/2014	KE-117	NA
4/14/2014	KE-204, KE-206, KE-208	NA
4/15/2014	KE-205, KE-207, KE-209, KE-210	NA
Annual Groundwater Sampling		
4/30/2014	MW104, MW121S, MW121D, MW122, SH-MW-3, GEO-1, GEO-2	Sample from MW104 was used for MS/MSD
5/1/2014	MW117S, MW117T, MW117D, MW118S, MW118D, MW118T, MW119S, MW119T, MW120S, MW120D, MW116	Field duplicate MW116 (MW900)
6/11/2014	MW112A	NA
Semi-Annual Groundwater Sampling		
11/18/2014	MW112A, MW118D, MW121D, MW122	NA
Annual Groundwater Sampling		
4/2/2015	MW104, MW116, MW117S, MW117T, MW117D, MW118S, MW118D, MW119S, MW119T, MW121S, MW121D, MW122, SH-MW-3, GEO-1, GEO-2	Sample from MW104 was used for MS/MSD Field duplicate MW116 (MW901)
4/3/2015	MW118T, MW120S, MW120D	
4/17/2015	MW112A	Field duplicate MW112A (MW900)
Semi-Annual Groundwater Sampling		
11/19/2015	MW118D, MW121D, MW122	NA
Annual Groundwater Sampling		
4/28/2016	MW1112A, MW117S, MW117T, MW117D, MW118S, MW118T, MW118D, MW119S, MW119T, MW120S, MW120D, MW121S, MW121D, MW122, GEO-1	Field duplicate MW116 (MW900) Field duplicate GEO-2 (MW901)
4/29/2016	MW104, MW116, MW202, GEO-2	Sample from MW104 was used for MS/MSD

General Notes:
1. NA = not applicable.
2. QA/QC = quality assurance/quality check.
3. MS/MSD = matrix spike/matrix spike duplicate.
4. VOC = volatile organic compound.
5. All groundwater samples submitted for VOC testing. Selected samples collected in January 2007, April 2010, April 2011, April 2012, April 2013, April 2014, May 2014, June 2014, April 2015, April 2016, April 2017 and April 2018 were also submitted for natural attenuation parameter testing.

Table 4-1. Summary of Groundwater Sampling Activities
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sampling Event and Date	Sampled Locations	QA/QC Samples
Semi-Annual Groundwater Sampling		
11/21/2016	MW112A, MW118D, MW121D, MW122	NA
Annual Groundwater Sampling		
4/17/2017	MW104, MW116, MW117S, MW117T, MW117D, MW118S, MW118T, MW118D, MW121S, MW121D, MW122, MW202, GEO-1	Field duplicate MW116 (MW900) Field duplicate MW112A (MW901) Sample from MW104 was used for MS/MSD
4/18/2017	MW112A, MW119S, MW119T, MW120S, MW120D, GEO-2	
4/28/2017	SH-MW-2, MW104	
Semi-Annual Groundwater Sampling		
11/8/2017	MW118D, MW121D, MW122	
11/10/2017	MW112A	NA
Annual Groundwater Sampling		
4/3/2018	MW117S, MW117T, MW117D, MW118S, MW118T, MW118D, MW119S, MW119T, MW121S, MW121D, MW122	Field duplicate MW116 (MW900) Field duplicate GEO-2 (MW901) Sample from MW104 was used for MS/MSD
4/4/2018	GEO-1, GEO-2, MW104, MW112A, MW116, MW120S, MW120D, MW202, SH-MW-2	
Semi-Annual Groundwater Sampling		
11/15/2018	MW 112A MW118D, MW121D, MW122	NA
Annual Groundwater Sampling		
4/15/2019	MW112A, MW117S, MW117T, MW117D, MW118S, MW118D, MW121S, MW121D, MW122	Field duplicate MW116 (MW900) Field duplicate GEO-2 (MW901) Sample from SHMW2 was used for MS/MSD
4/16/2019	MW116, MW118T, MW119S, MW119T, MW120S, MW120D, MW202, SHMW2, GEO-1, GEO-2	
Semi-Annual Groundwater Sampling		
11/23/2019	MW 112A, MW118D, MW121D, MW122	NA

General Notes:
1. NA = not applicable.
2. QA/QC = quality assurance/quality check.
3. MS/MSD = matrix spike/matrix spike duplicate.
4. VOC = volatile organic compound.
5. All groundwater samples submitted for VOC testing. Selected samples collected in January 2007, April 2010, April 2011, April 2012, April 2013, April 2014, May 2014, June 2014, April 2015, April 2016, April 2017 and April 2018 were also submitted for natural attenuation parameter testing.

Table 4-2. Chemical Testing Results - GEI Groundwater Sampling
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sample Location:			GEO-1																						GEO-2								
Sample Name:			GEO-1	GEO-1	GEO-1	GEO-1	MW800 (FD)	GEO1	GEO-1	GEO-1	GEO-1	GEO-1	GEO-1	GEO-1	GEO-1	GEO-1	GEO-1	GEO-1	GEO-1	GEO-1	GEO-1	GEO-1	GEO-1	GEO-1	GEO-2	GEO-2	GEO-2	GEO-2	GEO2	GEO-2	GEO-2	GEO-2	GEO-2	GEO-2
Well Screen Interval (ft bgs):			5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20
Sample Date:			8/16/04	5/23/06	10/5/06	1/17/07	1/17/07	4/12/07	4/15/08	7/15/08	10/21/08	1/13/09	4/13/09	7/15/09	10/14/09	4/13/10	4/22/11	4/17/12	4/24/13	4/30/14	4/2/15	4/28/16	4/17/17	4/4/18	4/16/19	8/16/04	5/23/06	10/5/06	1/17/07	4/12/07	7/15/08	10/22/08	1/13/09	4/13/09	7/15/09	10/14/09
Collected By:			GeoInsight	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GeoInsight	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
Analyte	**Method**	**Units**																																	
Volatile Organic Compounds (VOCs)																																			
Acetone	8260	µg/l	< 400	< 5.0	< 5.0	< 5.0	< 5.0	9.7	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 10	< 10	< 10	<50	<10	<10	487	< 5.0	< 5.0	< 25	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0
Benzene			< 20	< 0.50	< 0.50	< 0.50	< 0.50	0.27 J	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<2.5	<0.50	<0.50	< 5.0	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane			< 20	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)			< 200	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<50	<10	<10	< 5.0	< 5.0	< 5.0	< 25	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon disulfide			< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<10	<2.0	<2.0	< 25	< 5.0	< 5.0	4.5 J	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon tetrachloride			< 20	3.6	1.4	2.3	2.3	5.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene			< 20	0.76 J	0.86 J	0.76 J	0.84 J	0.77 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane			< 40	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<5.0	<1.0	<1.0	< 10	< 2.0	< 2.0	< 10	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloroform			< 20	< 1.0	< 1.0	0.60 J	0.61 J	1.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	0.62 J	< 1.0	0.60 J	0.84 J
Chloromethane			< 40	< 2.0	3.7	< 2.0	1.8 J	6.2	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<5.0	<1.0	<1.0	< 10	< 2.0	< 2.0	< 10	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,4-Dichlorobenzene			< 20	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane			< 20	4.3	2.9	5.4	5.6	10.6	< 1.0	0.38 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5.0	<1.0	<1.0	< 5.0	2.2	2.0	< 5.0	2.5	1.1	< 1.0	< 1.0	0.29 J	< 1.0	< 1.0
1,2-Dichloroethane			< 20	< 1.0	< 1.0	< 1.0	< 1.0	1.3	< 1.0	13.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene			39.8	989	1330 E	247	241	8980	3.0	26.2	1.4	1.3	1.7	< 1.0	2.0	< 1.0	7.9	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5.0	<1.0	<1.0	23.2	14.2	26.3	25.2	11.5	13.4	8.4	7.0	17.0	6.5	10.8
cis-1,2-Dichloroethylene			< 20	4.3	2.3	3.3	< 1.0	8.7	< 1.0	1.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5.0	<1.0	<1.0	< 5.0	< 1.0	1.6	9.0	< 1.0	< 1.0	< 1.0	< 1.0	2.8	< 1.0	< 1.0
trans-1,2-Dichloroethylene			< 20	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane			< 20	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<5.0	<1.0	<1.0	< 5.0	< 2.0	< 2.0	< 10	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,4-Dioxane			NT	< 25	< 25 R	< 25	< 25	< 25	< 25	< 25	< 25	< 25 J+	< 25	< 25	< 25	< 25	367	< 25	< 50	< 25 K-	< 25	< 100	<630	<130	<130	NT	< 25	< 25 R	< 130	< 25	< 25	< 25	< 25 J+	< 25	< 25	< 25
Ethylbenzene			< 20	< 1.0	< 1.0	< 1.0	< 1.0	0.41 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	3.1 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Hexanone			< 200	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<25	<5.0	<5.0	< 5.0	< 5.0	< 5.0	< 25	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Isopropyltoluene			< 20	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<10	<2.0	<2.0	< 5.0	< 5.0	< 5.0	< 25	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methyl tert-butyl ether			< 20	64.2	5.3 J+	2.5	2.7	6.9 J+	7.9	< 1.0	< 1.0	0.26 J	1.1	< 1.0	4.8	< 1.0	< 1.0	< 1.0	< 1.0 K-	< 1.0	< 1.0	< 1.0	<5.0	<1.0	<1.0	37.6	79.9	12.8 J+	9.8	16.5	< 1.0	5.9	0.45 J	< 1.0	0.29 J	0.56 J
Methylene chloride			< 200	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<10	<2.0	<2.0	< 5.0	< 2.0	< 2.0	< 10	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Naphthalene			< 20	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<25	<5.0	<5.0	< 5.0	< 5.0	< 5.0	8.3 J	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0
Tert-amyl methyl ether			NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<10	<2.0	<2.0	NT	< 2.0	< 2.0	< 10	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,1,1,2-Tetrachloroethane			< 20	5.7	3.0 J	5.7	5.8	15.6	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<1.0	<1.0	<1.0	< 5.0	< 5.0	< 5.0	< 25	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tetrachloroethylene (PCE)			1880	18600	19500	17300	18000	48500	135	268	115	76.1	64.3	71.5	698	79.2	2580	171	85.1	252	162	134	1340	70.9	32.9	285	131	693	1420	120	115	140	110	263 G	202	167
Tetrahydrofuran			NT	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10 G	< 10	< 10	<50	<10	<10	NT	< 10	< 10	< 5.0	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Toluene			< 20	1.2	0.72 J	1.1	0.99 J	2.1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	3.4 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane (TCA)			1720	19100	9620 J+	13300	14200	42500 J+	29.5	217	8.5	9.2	10.0	5.9	16.6 J+	7.0	12.2	3.7	2.1	2.3	3.0	1.3	9.1	<1.0	<1.0	490	125	376	867	147 J+	70.5	25.5	22.5	110	29.7	37.5 J+
1,1,2-Trichloroethane			< 20	< 1.0	< 1.0	0.94 J	0.99 J	3.8	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene (TCE)			898	10000	5530	9090	9660	30600	18.9	70.6	11.0	8.9	8.0	10.1	31.2	8.2	35.6	6.5	4.8	5.9	7.1	5.4	2.2 J	3.60	1.90	60	27.3	170	602	36.0	22.8	20.9	19.7	99.7	31.7	33.4
Vinyl chloride			< 20	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m,p-Xylene			< 40	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5.0	<1.0	<1.0	< 10	< 1.0	< 1.0	11.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene			< 20	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Xylene			ND	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5.0	<1.0	<1.0	ND	< 1.0	< 1.0	14.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Metals (Total)	6010B	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT		NT	NT	NT	NT	NT	NT	NT
Arsenic																													< 10							
Iron																													< 100							
Manganese																													NT							
Metals (Dissolved)	6010C	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Iron																																				
Others			NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT		NT	NT	NT	NT	NT	NT	NT
Methane	8015	µg/l																											< 10							
Ethane	8015	µg/l																											< 10							
Ethylene	8015	µg/l																											< 10							
Alkalinity	E310.1	µg/l																											104000							
Chloride	E325.3	µg/l																											1310000							
Chlorine, Total Residual	E330.4	µg/l																											NT							
Iron, Ferrous	3500FE B	µg/l																											NT							
Nitrate & Nitrite as N	E353.2	µg/l																											7000							
Nitrogen, Nitrate	E353.2	µg/l																											7000							
Nitrogen, Nitrite	E354.1	µg/l																											< 10							
Sodium	6010C	µg/l																											NT							
Sulfate	E375.4	µg/l																											88000							
Sulfide	E376.1	µg/l																											< 2000							
Surfactants	E425.1	µg/l																											< 100							
Total Organic Carbon	E415.1	µg/l																											< 1000							

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "< " = The analyte was not detected at a concentration above the specified reporting limit.
5. SHA = Sanborn Head & Associates.
6. FD = Field Duplicate Sample.
7. NT = Not Tested.

Qualifying Notes:
B The analyte found in associated method blank.
C+ The result has a high bias due to surrogate recovery above upper control limits.
E The value exceeds the calibration range.
F+ The result has a high bias due to matrix spike recovery above upper control limits.
F- The result has a low bias due to matrix spike recovery below lower control limits.
G The result is estimated due to duplicate precision outside control limits.
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.
K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.
R The result is rejected due to gross exceedence of minimum response factor criteria.

Table 4-2. Chemical Testing Results - GEI Groundwater Sampling
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sample Location:			GEO-2 (cont.)												GEO-3							GEO-4					GEO-5					GEO-6	
Sample Name:			GEO-2	GEO-2	GEO-2	GEO-2	GEO-2	GEO-2	MW901 (FD)	GEO-2	GEO-2	MW901 (FD)	GEO-2	MW901	GEO-3	GEO-3	MW900 (FD)	GEO-3	MW900 (FD)	GEO-3	GEO3	GEO-4	GEO-4	GEO-4	GEO-4	GEO4	GEO-5	GEO-5	GEO-5	GEO-5	GEO5	GEO-6	GEO-6
Well Screen Interval (ft bgs):			5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20
Sample Date:			4/13/10	4/21/11	5/1/13	4/30/14	4/2/15	4/29/16	4/29/16	4/18/17	4/4/18	4/4/2018	4/16/2019	4/16/2019	8/16/04	5/24/06	5/24/06	5 to 20 10/4/06	10/4/06	1/16/07	4/13/07	8/16/04	5/24/06	10/4/06	1/16/07	4/16/07	8/16/04	5/24/06	10/4/06	1/16/07	4/16/07	8/16/04	5/24/06
Collected By:			GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GeoInsigh	GEI	GEI	GEI	GEI	GEI	GEI	GeoInsight	GEI	GEI	GEI	GEI	GeoInsight	GEI	GEI	GEI	GEI	GeoInsight	GEI
Analyte	**Method**	**Units**																															
Volatile Organic Compounds (VOCs)																																	
Acetone	8260	µg/l	< 5.0	< 5.0	< 10	< 10	< 10	< 10	< 10	<10	<10	<10	<10	<10	< 1000	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 2000	< 5.0	< 5.0	< 100	< 50	< 2000	< 5.0	< 5.0	< 250	< 5.0	< 200	< 5.0
Benzene			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 100	< 0.50	< 0.50	< 10	< 5.0	< 100	< 0.50	< 0.50	< 25	< 0.50	< 10	< 0.50
Bromodichloromethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 1.0	< 20	< 10	< 100	< 1.0	< 1.0	< 50	< 1.0	< 10	< 1.0
2-Butanone (MEK)			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<10	<10	<10	<10	<10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 1000	< 5.0	< 5.0	< 100	< 50	< 1000	< 5.0	< 5.0	< 250	< 5.0	< 100	< 5.0
Carbon disulfide			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	<2.0	<2.0	<2.0	<2.0	< 250	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 100	< 50	< 5.0	< 5.0	< 5.0	< 250	< 5.0	< 5.0	< 5.0
Carbon tetrachloride			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 1.0	< 20	< 10	< 100	< 1.0	< 1.0	< 50	< 1.0	< 10	< 1.0
Chlorobenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 1.0	< 20	< 10	< 100	< 1.0	< 1.0	< 50	< 1.0	< 10	< 1.0
Chloroethane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 100	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 200	< 2.0	< 2.0	< 40	< 20	< 200	< 2.0	< 2.0	< 100	< 2.0	< 20	< 2.0
Chloroform			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.56 J	0.76 J	<1.0	<1.0	<1.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	2.5	< 20	< 10	< 100	< 1.0	0.62 J	< 50	< 1.0	< 10	< 1.0
Chloromethane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 100	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 200	< 2.0	< 2.0	< 40	< 20	< 200	< 2.0	< 2.0	< 100	< 2.0	< 20	< 2.0
1,4-Dichlorobenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 1.0	< 20	< 10	< 100	< 1.0	< 1.0	< 50	< 1.0	< 10	< 1.0
1,1-Dichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	11.6	11.6	2.6	< 1.0	< 100	2.7	7.1	< 20	< 10	< 100	3.0	9.7	< 50	< 1.0	< 10	2.0
1,2-Dichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 1.0	< 20	< 10	< 100	< 1.0	< 1.0	< 50	< 1.0	< 10	< 1.0
1,1-Dichloroethylene			13.8	3.7	7.8	3.8	3.1	4.3	4.9	1.5	1.1	1.1	<1.0	<1.0	108	< 1.0	< 1.0	59.3	59.1	11.5	1.4	< 100	6.1	17.8	< 20	< 10	< 100	8.9	32.7	< 50	< 1.0	< 10	4.6
cis-1,2-Dichloroethylene			3.1	2.1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	2.8	2.6	1.2	< 1.0	< 100	6.3	16.7	< 20	5.5 J	< 100	12.5	35.2	< 50	< 1.0	14.8	9.1
trans-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 1.0	< 20	< 10	< 100	< 1.0	< 1.0	< 50	< 1.0	< 10	< 1.0
1,2-Dichloropropane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 5.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 100	< 2.0	< 2.0	< 40	< 20	< 100	< 2.0	< 2.0	< 100	< 2.0	< 10	< 2.0
1,4-Dioxane			< 25	< 25	< 25	< 25 K-	< 25	< 25	< 25	<130	<130	<130	<130	<130	NT	< 25	< 25	< 25 R	< 25 R	< 25	< 25	NT	< 25	< 25 R	< 5.0	< 250	NT	< 25	< 25 R	< 1300	< 25	NT	< 25
Ethylbenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 1.0	< 20	< 10	< 100	< 1.0	< 1.0	< 50	< 1.0	< 10	< 1.0
2-Hexanone			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	<5.0	<5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 1000	< 5.0	< 5.0	< 100	< 50	< 1000	< 5.0	< 5.0	< 250	< 5.0	< 100	< 5.0
4-Isopropyltoluene			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	<2.0	<2.0	<2.0	<2.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 100	< 5.0	< 5.0	< 100	< 50	< 100	< 5.0	< 5.0	< 250	< 5.0	< 10	< 5.0
Methyl tert-butyl ether			< 1.0	< 1.0	4.5	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	1.2 J+	1.1 J+	< 1.0	< 1.0	< 100	< 1.0	1.5 J+	< 20	< 10	< 100	1.3	3.3 J+	< 50	< 1.0	< 10	1.3
Methylene chloride			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0	<2.0	<2.0	< 5.0	< 2.0	< 2.0	< 5.0	< 2.0	< 5.0	< 2.0	< 1000	< 2.0	< 2.0	< 40	< 20	< 1000	< 2.0	< 2.0	< 100	< 2.0	< 100	< 2.0
Naphthalene			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	<5.0	<5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 100	< 5.0	< 5.0	< 100	< 50	< 100	< 5.0	< 5.0	< 250	< 5.0	< 10	< 5.0
Tert-amyl methyl ether			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0	<2.0	<2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 40	< 20	NT	< 2.0	< 2.0	< 100	< 2.0	NT	< 2.0
1,1,1,2-Tetrachloroethane			< 5.0	< 5.0	< 5.0	< 5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 100	< 5.0	0.84 J	< 100	< 50	< 100	< 5.0	< 5.0	< 250	< 5.0	< 10	< 5.0
Tetrachloroethylene (PCE)			480	66.4	140	119	76.3	147	145	50.7	48.5	45.4	26.3	25.6	4020	162	157	2720	2340	529	93.2	12900	6690	24100	16700	8240	14400	2440	12900	254 F+	17.9	782	675
Tetrahydrofuran			< 10	< 10	< 10	< 10 G	< 10	< 10	< 10	<10	<10	<10	<10	<10	NT	< 10	< 10	< 10	< 10	< 10	< 10	NT	< 10	< 10	< 200	< 100	NT	< 10	< 10	< 500	< 10	NT	< 10
Toluene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	1.8	1.7	<1.0	<1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 1.0	< 20	< 10	< 100	< 1.0	< 1.0	< 50	< 1.0	< 10	< 1.0
1,1,1-Trichloroethane (TCA)			61.9	4.3	16.0	15.5	11.4	18.4	20.4	5.2	3.7	3.6	1.1	1.1	204	4.0	4.4	78.2 J+	77.2 J+	16.2	< 1.0	1170	113	321 J+	113	70.9	646	246	652	< 50	< 1.0	27.8	42.5
1,1,2-Trichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 1.0	< 20	< 10	< 100	< 1.0	< 1.0	< 50	< 1.0	< 10	< 1.0
Trichloroethylene (TCE)			103	14.7	14.3	12.2	9.9	12.7	12.8	7.1	6.1	6.0	4.4	4.2	507	14.4	14.1	209	207	70.2	10.0	720	86.8	235	129	74.8	404	146	446	< 50	< 1.0	122	78.8
Vinyl chloride			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 1.0	< 20	< 10	< 100	< 1.0	< 1.0	< 50	< 1.0	< 10	< 1.0
m,p-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 100	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 200	< 1.0	< 1.0	< 20	< 10	< 200	< 1.0	< 1.0	< 50	< 1.0	< 20	< 1.0
o-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 1.0	< 20	< 10	< 100	< 1.0	< 1.0	< 50	< 1.0	< 10	< 1.0
Total Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	<1.0	ND	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	ND	< 1.0	< 1.0	< 20	< 10	ND	< 1.0	< 1.0	< 50	< 1.0	ND	< 1.0
Metals (Total)	6010B	µg/l							NT			NT		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Arsenic			NT	NT	NT	NT	NT	NT					NT																				
Iron			< 100 J+	< 100	< 100	NT	NT	NT					NT																				
Manganese			< 15	< 15	< 15	< 15	< 15	< 15		<15	<15		<0.15																				
Metals (Dissolved)	6010C	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Iron																																	
Others									NT			NT		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methane	8015	µg/l	1.58	< 0.30	< 0.30	< 10	< 10	< 10		<10	<0.11		0.14																				
Ethane	8015	µg/l	< 0.10	< 0.10	< 0.10	< 10	< 10	< 10		<10	<0.23		<0.23																				
Ethylene	8015	µg/l	< 0.10	< 0.10	< 0.10	< 10	< 10	< 10		<10	<0.31		<0.31																				
Alkalinity	E310.1	µg/l	44100	50400	64600	69000	48400	50300		34000	32800		22.1																				
Chloride	E325.3	µg/l	165000	53700	252000	175000	220000	290000		287000	254000		198																				
Chlorine, Total Residual	E330.4	µg/l	< 50 A	< 50	< 50	< 50 A	< 50 A				1130		<0.10																				
Iron, Ferrous	3500FE B	µg/l	NT	NT	NT	< 100	< 100	< 100		<100	<200		<0.20																				
Nitrate & Nitrite as N	E353.2	µg/l	6700	4400	3300	1700	1600	1500		1700	2300		1.7																				
Nitrogen, Nitrate	E353.2	µg/l	6700	4400	3300	1700	1600	1500		1700	2300		1.7																				
Nitrogen, Nitrite	E354.1	µg/l	< 10	< 10	< 10	< 10	< 10	< 10		<10	<10		<0.010																				
Sodium	6010C	µg/l	NT	NT	NT	NT	NT	NT		NT	NT		NT																				
Sulfate	E375.4	µg/l	117000	105000	67800	38900	27500	30900		21600	19000		15.9																				
Sulfide	E376.1	µg/l	< 2000	< 2000	< 2000	< 2000	< 2000				<2000		<2.0																				
Surfactants	E425.1	µg/l	< 100	< 100	< 100	< 100	< 100	< 100		<100	<100		<0.10																				
Total Organic Carbon	E415.1	µg/l	2400	4600	1700	1000	<5000	< 1000		<1000	1000		<1.0																				

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "< " = The analyte was not detected at a concentration above the specified reporting limit.
5. SHA = Sanborn Head & Associates.
6. FD = Field Duplicate Sample.
7. NT = Not Tested.

Qualifying Notes:
B The analyte found in associated method blank.
C+ The result has a high bias due to surrogate recovery above upper control limits.
E The value exceeds the calibration range.
F+ The result has a high bias due to matrix spike recovery above upper control limits.
F- The result has a low bias due to matrix spike recovery below lower control limits.
G The result is estimated due to duplicate precision outside control limits.
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.
K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.
R The result is rejected due to gross exceedence of minimum response factor criteria.

Table 4-2. Chemical Testing Results - GEI Groundwater Sampling
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sample Location:			GEO-6 (cont.)					MW-1					MW101					MW102								MW103						MW104	
Sample Name:			GEO-6	GEO-6	MW900 (FD	GEO6	MW901 (FD)	MW-1	MW-1	MW-1	MW-1	MW1	MW-101	MW101	MW101	MW101	MW900	MW-102	MW102	MW-102	MW102	MW102	MW102	MW102	MW102	MW-103	MW103	MW103	MW103	MW103	MW103	MW-104	MW104
Well Screen Interval (ft bgs):			5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	Unknown	Unknown	Unknown	Unknown	Unknown	9 to 19	9 to 19	9 to 19	9 to 19	9 to 19	6 to 16	6 to 16	6 to 16	6 to 16	6 to 16	6 to 16	6 to 16	6 to 16	6 to 16	6 to 16	6 to 16	6 to 16	6 to 16	6 to 16	5 to 15	5 to 15
Sample Date:			10/4/06	1/16/07	1/16/07	4/16/07	4/16/07	7/1/02	8/9/04	5/23/06	1/17/07	4/17/07	5/24/06	10/5/06	1/17/07	4/13/07	4/13/07	5/24/06	10/5/06	1/16/07	4/13/07	7/18/07	10/10/07	1/10/08	4/17/08	5/24/06	8/7/06	10/5/06	1/16/07	1/18/07	4/13/07	5/23/06	10/5/06
Collected By:			GEI	GEI	GEI	GEI	GEI	SHA	GeoInsigh	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
Analyte	**Method**	**Units**																														
Volatile Organic Compounds (VOCs)																																
Acetone	8260	µg/l	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.000	< 40000	40.0	36.1	< 2500	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 25	< 5.0	< 5.0
Benzene			< 0.50	< 0.50	< 0.50	< 1.0	< 0.50	< 5.00	< 2000	2.0	< 0.50	< 250	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NT	< 1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.5	< 0.50	0.60
Bromodichloromethane			< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 5.00	< 2000	< 1.0	< 1.0	< 500	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0
2-Butanone (MEK)			< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.000	< 4000	< 5.0	< 5.0	< 2500	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 25	< 5.0	< 5.0
Carbon disulfide			< 5.0	0.81 J	< 5.0	< 10	< 5.0	< 5.000	< 10000	< 5.0	< 5.0	< 2500	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 25	< 5.0	< 5.0
Carbon tetrachloride			< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 5.00	< 2000	19.0	22.4	< 500	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0
Chlorobenzene			< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 5.00	< 2000	1.1	1.2	< 500	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0
Chloroethane			< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	< 10000	< 4000	< 2.0	< 2.0	< 1000	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 10	2.7	10.3
Chloroform			< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 7500	< 2000	3.7	1.6	< 500	1.8	< 1.0	< 1.0	< 1.0	1.8	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	0.65 J	0.62 J	< 5.0	< 1.0	< 1.0
Chloromethane			< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	< 25000	< 4000	< 2.0	14.6	< 1000	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 10	< 2.0	< 2.0
1,4-Dichlorobenzene			< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 25000	< 2000	< 1.0	< 1.0	< 500	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0
1,1-Dichloroethane			4.4	1.7	1.6	0.92 J	1.1	< 7500	< 2000	59.8	59.9	< 500	< 1.0	< 1.0	< 1.0	< 1.0	1.6	< 1.0	0.88 J	< 1.0	< 1.0	0.42 J	2.1	4.1	0.51 J	27.2	3.7	13.0	11.5	10.1	7.9	33.0	98.9
1,2-Dichloroethane			< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 5.00	< 2000	4.0	< 1.0	< 500	< 1.0	< 1.0	< 1.0	3.9 G	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0
1,1-Dichloroethylene			11.0	4.4	3.2	2.8	3.8	< 5.00	< 2000	11500	1260	2290	8.7	21.1	14.1	< 1.0	4.6 G	6.3	50.2	30	< 1.0	23.6	39.7	51.8	22.2 C+	13.4	2.0	6.5	4.3	4.3	8.0	3.3	9.4
cis-1,2-Dichloroethylene			15.4	7.7	6.9	5.3	6.3	< 5.00	< 2000	24.3	7.7	< 500	< 1.0	< 1.0	1.3	< 1.0	2.1 G	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	3.0	2.5	< 1.0	< 1.0	< 5.0	198	435
trans-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 7500	< 2000	< 1.0	< 1.0	< 500	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	2.2	9.3
1,2-Dichloropropane			< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	< 18000	< 2000	4.5	< 2.0	< 1000	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 10	< 2.0	< 2.0
1,4-Dioxane			< 25 R	< 25	< 25	< 5.0	< 25	NT	NT	< 25 R	< 25	< 13000	< 25	< 25 R	< 25	< 25	< 25	< 25	< 25 R	< 25	< 25	NT	< 50	< 25	< 25	< 25	< 25 R	< 25	< 25	< 130	< 25	< 25 R
Ethylbenzene			< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 5.00	< 2000	2.8	4.4	< 500	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0
2-Hexanone			< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.00	< 20000	< 5.0	< 5.0	< 2500	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 25	< 5.0	< 5.0
4-Isopropyltoluene			< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.00	< 2000	< 5.0	< 5.0	< 2500	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 25	< 5.0	< 5.0
Methyl tert-butyl ether			1.9 J+	1.2	1.2	0.80 J	0.81 J	< 10000	< 2000	< 1.0 J+	< 1.0	< 500	< 1.0	< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	4.5 J+	2.7	< 1.0	NT	17.3	24.2	1.7 C+	< 1.0	< 1.0	0.65 J+	< 1.0	< 1.0	< 5.0	< 1.0	10.0 J+
Methylene chloride			< 2.0	< 2.0	1.3 J	2.5 J	< 2.0	< 5.000	< 20000	< 2.0	< 2.0	< 1000	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	4.3	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 10	< 2.0	< 2.0
Naphthalene			< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.000	< 2000	< 5.0	2.4 J	< 2500	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 25	< 5.0	< 5.0
Tert-amyl methyl ether			< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	NT	NT	< 2.0	< 2.0	< 1000	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 10	< 2.0	< 2.0
1,1,1,2-Tetrachloroethane			< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.00	< 2000	38.1	22.8	< 2500	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 10	< 5.0	< 5.0	< 5.0	< 5.0 F+	< 5.0	< 25	< 5.0	< 5.0
Tetrachloroethylene (PCE)			1980	632	594 F+	618	497	52000	24200	34400	74900	49600	163	171	192	94.0	90.7	200	898	692	20.3	524	685	606	438 C+	2600	592	1510	1200 F+	1250 F-	1510	60.4	160
Tetrahydrofuran			< 10	< 10	< 10	< 20	< 10	NT	NT	< 10	< 10	< 5000	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	NT	< 20	< 10	< 10	< 10	< 10	< 10	< 10	< 50	< 10	< 10
Toluene			< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 7500	< 2000	19.6	15.3	< 500	< 1.0	< 1.0	0.38 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0
1,1,1-Trichloroethane (TCA)			77.2 J+	33.7	25.3	21.2	26.8	290000	112000	255000	135000	151000	110	146	131	50.5 J+	43.0 J+	< 1.0	65.7 J+	32.6	< 1.0	26.3	69.8	121	21.9 C+	34.0	4.4	14.4 J+	17.6	21.0	< 5.0	21.0	138 J+
1,1,2-Trichloroethane			< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 7500	< 2000	85.8	16.2	< 500	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0
Trichloroethylene (TCE)			131	75.3	56.5	55.5	70.5	220000	128000	175000	120000	103000	50.5	30.2	38.4	47.2	45.7	15.6	89.1	57.0	2.0	46.1	61.0	65.3	35.6 C+	109	24.0	60.4	37.0	38.0	58.7	63.4	110
Vinyl chloride			< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 10000	< 2000	< 1.0	1.2	< 500	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	23.7	36.4
m,p-Xylene			< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 5.00	< 4000	4.8	5.9	< 500	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0
o-Xylene			< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 5.00	< 2000	9.2	13.8	< 500	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0
Total Xylene			< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	ND	ND	14.0	19.7	< 500	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0
Metals (Total)	6010B	µg/l	NT			NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Arsenic				< 10	< 10																								< 10				
Iron				< 100	< 100																								< 100				
Manganese				NT	NT																								NT				
Metals (Dissolved)	6010C	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Iron																																	
Others			NT			NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methane	8015	µg/l		< 10	< 10																								< 10				
Ethane	8015	µg/l		< 10	< 10																								< 10				
Ethylene	8015	µg/l		< 10	< 10																								< 10				
Alkalinity	E310.1	µg/l		134000	133000																								53500				
Chloride	E325.3	µg/l		825000	825000																								675000				
Chlorine, Total Residual	E330.4	µg/l		NT	NT																								NT				
Iron, Ferrous	3500FE B	µg/l		NT	NT																								NT				
Nitrate & Nitrite as N	E353.2	µg/l		3500	3500																								8900				
Nitrogen, Nitrate	E353.2	µg/l		3500	3500																								8900				
Nitrogen, Nitrite	E354.1	µg/l		< 10	< 10																								16				
Sodium	6010C	µg/l		NT	NT																								NT				
Sulfate	E375.4	µg/l		45800	45500																								65700				
Sulfide	E376.1	µg/l		< 2000	< 2000																								< 2000				
Surfactants	E425.1	µg/l		< 100	< 100																								< 100				
Total Organic Carbon	E415.1	µg/l		< 1000	< 1000																								1700				

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "< " = The analyte was not detected at a concentration above the specified reporting limit.
5. SHA = Sanborn Head & Associates.
6. FD = Field Duplicate Sample.
7. NT = Not Tested.

Qualifying Notes:
B The analyte found in associated method blank.
C+ The result has a high bias due to surrogate recovery above upper control limits.
E The value exceeds the calibration range.
F+ The result has a high bias due to matrix spike recovery above upper control limits.
F- The result has a low bias due to matrix spike recovery below lower control limits.
G The result is estimated due to duplicate precision outside control limits.
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.
K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.
R The result is rejected due to gross exceedence of minimum response factor criteria.

Table 4-2. Chemical Testing Results - GEI Groundwater Sampling
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sample Location:			MW104 (cont.)																						MW105											
Sample Name:			MW104 6 to 16 1/16/07 GEI	MW104 5 to 15 4/13/07 GEI	MW104 5 to 15 7/19/07 GEI	MW104 5 to 15 10/15/07 GEI	MW104 5 to 15 1/11/08 GEI	MW104 5 to 15 4/15/08 GEI	MW104 5 to 15 7/15/08 GEI	MW104 5 to 15 10/21/08 GEI	MW104 5 to 15 1/14/09 GEI	MW104 5 to 15 4/14/09 GEI	MW104 5 to 15 7/15/09 GEI	MW104 5 to 15 10/14/09 GEI	MW104 5 to 15 4/12/10 GEI	MW104 5 to 15 4/21/11 GEI	MW104 5 to 15 4/17/12 GEI	MW104 5 to 15 4/24/13 GEI	MW104 5 to 15 4/30/14 GEI	MW104 5 to 15 4/2/15 GEI	MW104 5 to 15 4/29/16 GEI	MW104 5 to 15 4/17/17 GEI	MW104 5 to 15 4/28/17 GEI	MW104 5 to 15 4/4/18 GEI	MW-105 19 to 29 5/24/06 GEI	MW105 19 to 29 10/5/06 GEI	MW105 19 to 29 1/17/07 GEI	MW105 19 to 29 4/16/07 GEI	MW105 19 to 29 7/19/07 GEI	MW105 19 to 29 10/10/07 GEI	MW105 19 to 29 1/9/08 GEI	MW105 19 to 29 4/18/08 GEI	MW105 19 to 29 7/14/08 GEI	MW105 19 to 29 10/22/08 GEI	MW105 19 to 29 1/12/09 GEI	MW105 19 to 29 4/13/09 GEI
Well Screen Interval (ft bgs):																																				
Sample Date:																																				
Collected By:																																				
Analyte	**Method**	**Units**																																		
Volatile Organic Compounds (VOCs)																							NT													
Acetone	8260	µg/l	< 5.0	< 5.0	NT	< 5.0	< 5.0	4.0 J	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0 J+	9.0	4.8	< 10	< 10	< 10	< 10		<10	<10	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0
Benzene			< 0.50	< 0.50	NT	0.43 J	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		<0.50	<0.50	< 0.50	< 0.50	< 0.50	< 0.50	NT	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane			< 1.0	< 1.0	NT	< 1.0	< 1.0	0.31 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)			< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0		<10	<10	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon disulfide			< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0		<2.0	<2.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon tetrachloride			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene			< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane			6.1	4.7	6.9	5.6	2.3	< 2.0	3.9	5.9	< 2.0	< 2.0	2.8	4.2	< 2.0	< 2.0	2.6	1.9 J	< 2.0	< 2.0	< 2.0		<1.0	<1.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloroform			< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane			< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0		<1.0	<1.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,4-Dichlorobenzene			< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane			57.1	46.8	68.3	86.6	38.7	33.0	71.5	74.3	33.2	37.9	47.1	73.9	19.6	24.3	< 1.0	28.4	27.1	9.7	38.1		21.1	25.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene			2.9	10	2.6	4.5	1.7	1.8	5.1	2.4	2.6	2.1	2.2	3.6	1.9	6.1	1.1	1.9	0.95 J	0.40 J	1.40		0.64 J	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethylene			244	250	194	279	148	145	203	192 F-	189	236 F-	212	334	112	154	67.3	93.6	95.2	49.8	77.3		83.9	67.6	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethylene			6.2	3.6	2.5	4.1	3.5	2.0	3.2	2.7	2.4	3.0	2.6	2.6	1.1	6.4	< 1.0	3.1	2.3	0.64 J	1.1		1.5	1.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane			< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0		<1.0	<1.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,4-Dioxane			< 25	< 25	NT	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25 F- K-	< 50	< 25 K-	< 25	< 25		<130	<130	< 25	< 25 R	< 25	< 25	NT	< 25	< 25	< 25	< 25	< 25	< 25	< 25
Ethylbenzene			< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Hexanone			< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0		<5.0	<5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Isopropyltoluene			< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0		<2.0	<2.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methyl tert-butyl ether			1.0	0.93 J J+	NT	7.2	1.1	0.72 J	3.9	2.4	0.63 J	< 1.0	0.98 J	1.8	< 1.0	< 1.0	0.90 J	< 1.0	< 1.0	< 1.0	0.61 J		<1.0	<1.0	< 1.0	< 1.0 J+	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methylene chloride			< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0		<2.0	<2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Naphthalene			< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0		<5.0	<5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tert-amyl methyl ether			< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0		<2.0	<2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,1,1,2-Tetrachloroethane			< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 1.0	< 1.0		<2.0	<2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Tetrachloroethylene (PCE)			29.3	39.6	31.2	49.3	12.1	22.4	16.8	22.8	22.6	19.3	22.0	16.9	14	14.8	11.9	9.7	10.1	10.7	6.5		15.1	10.7	7.8	0.69 J	0.67 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrahydrofuran			< 10	< 10	NT	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10 G	< 10	< 10		<10	<10	< 10	< 10	< 10	< 10	NT	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Toluene			< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane (TCA)			23.2	5.6 J+	28.0	89.8	12.5	10.8	42.9	26.1	13.3	11.8 F+	19.2	24.3 J+	4.4	5.1	11.4	4.3	5.1	2.8	8.6		4.1	3.7	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene (TCE)			49.1	51.4	40.4	< 1.0	27.0	34.9	37.1	38.2	44.8	53.7 F+	44.4	43.7	24.3	26.4	13.9	14.1	16.3	15.6	12.4		21.3	15	< 1.0	3.4	3.2	1.5	1.5	1.6	2.2	1.7	1.7	1.8	1.7	2.3
Vinyl chloride			47.4	40.4	38.2	68.0	26.4	29.9	41.8 F+	42.6	50.1	66.5	57.0	107.0	34.9	53.9	39.3	28.9	51.7	11.8	16.1		9.6	16.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m,p-Xylene			< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene			< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Xylene			< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Metals (Total)	6010B	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT										NT		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Arsenic															NT	NT	NT	NT	NT	NT	NT	NT			NT											
Iron															2900 J+	11800	10700	15300	8970	NT	NT	NT			NT											
Manganese															1510	3000	2590	2860	1570	154	2440	1150			1950											
Metals (Dissolved)	6010C	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Iron																			9890																	
Others			NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT									NT		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methane	8015	µg/l													159	184	724	252	185	<10	20.2	29.9		54.8												
Ethane	8015	µg/l													1.77	2.0	5.4	3.6	3.2 J	<10	< 10	<10		2												
Ethylene	8015	µg/l													0.87	1.1	11.6	4.92	3.8 J	<10	2.3 J	<10		1.6												
Alkalinity	E310.1	µg/l													338000	373000	464000	413000	393000	298000	319000	429000		336000												
Chloride	E325.3	µg/l													32500	189000	100000	247000	82500	74500	125000	33700		145000												
Chlorine, Total Residual	E330.4	µg/l													< 50 A	< 50	< 50 R	< 50 A F-	< 50 A	< 50 A				1700												
Iron, Ferrous	3500FE B	µg/l													NT	NT	NT	NT	4800	<100	4600	1200		2400												
Nitrate & Nitrite as N	E353.2	µg/l													120	320	200	280	150	390	< 110	<110		2600												
Nitrogen, Nitrate	E353.2	µg/l													120	320	200	280	150	390	< 100	<100		2600												
Nitrogen, Nitrite	E354.1	µg/l													< 10	< 10	< 10	< 10	< 10	<10	< 10	<10		<10												
Sodium	6010C	µg/l													NT	NT	NT	NT	46400	NT	NT	NT		NT												
Sulfate	E375.4	µg/l													41700	45300	29300	52400	104000	62800	232000	113000		139000												
Sulfide	E376.1	µg/l													< 2000	< 2000	< 2000	< 2000	< 2000	< 2000				<2000												
Surfactants	E425.1	µg/l													< 100	120	190	< 100	< 100	<100	110	<100		130												
Total Organic Carbon	E415.1	µg/l													5900	7400	9800	8500	7500	7000	8600	6600		8200												

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "< " = The analyte was not detected at a concentration above the specified reporting limit.
5. SHA = Sanborn Head & Associates.
6. FD = Field Duplicate Sample.
7. NT = Not Tested.

Qualifying Notes:

B The analyte found in associated method blank.
C+ The result has a high bias due to surrogate recovery above upper control limits.
E The value exceeds the calibration range.
F+ The result has a high bias due to matrix spike recovery above upper control limits.
F- The result has a low bias due to matrix spike recovery below lower control limits.
G The result is estimated due to duplicate precision outside control limits.
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.
K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.
R The result is rejected due to gross exceedence of minimum response factor criteria.

Table 4-2. Chemical Testing Results - GEI Groundwater Sampling
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sample Location:			MW105 (cont.)						MW106						MW107						MW108						MW109			MW110			MW111		
Sample Name:			MW105	MW105	MW105	MW105	MW105	MW105	MW106	MW106	MW106	MW106	MW106	MW106	MW107	MW107	MW107	MW107	MW107	MW107	MW108	MW108	MW108	MW108	MW108	MW108	MW109	MW109	MW109	MW110	MW110	MW110	MW111	MW111	MW111
Well Screen Interval (ft bgs):			19 to 29	19 to 29	19 to 29	19 to 29	19 to 29	19 to 29	9 to 19	9 to 19	9 to 19	9 to 19	9 to 19	9 to 19	2 to 12	2 to 12	2 to 12	2 to 12	2 to 12	2 to 12	2 to 12	2 to 12	2 to 12	2 to 12	2 to 12	2 to 12	3 to 13	3 to 13	3 to 13	3 to 13	3 to 13	3 to 13	4 to 14	4 to 14	4 to 14
Sample Date:			7/14/09	10/14/09	4/12/10	4/20/11	4/17/12	4/23/13	1/18/07	4/13/07	7/19/07	10/10/07	1/10/08	4/17/08	1/18/07	4/13/07	7/18/07	10/10/07	1/10/08	4/17/08	1/18/07	4/16/07	7/18/07	10/10/07	1/10/08	4/17/08	1/18/07	4/16/07	4/17/08	1/18/07	4/17/07	5/23/07	1/18/07	4/16/07	7/18/07
Collected By:			GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
Analyte	**Method**	**Units**																																	
Volatile Organic Compounds (VOCs)																																			
Acetone	8260	µg/l	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 10	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	69.9	< 5.0	9.2	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 50	< 130	NT
Benzene			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NT	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NT	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NT	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NT	< 5.0	< 13	NT
Bromodichloromethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 10	< 25	NT
2-Butanone (MEK)			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	7.7	< 5.0	1.1 J	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 50	< 130	NT
Carbon disulfide			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 50	< 130	NT
Carbon tetrachloride			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 10	< 25	< 1.0
Chlorobenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 10	< 25	NT
Chloroethane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 G	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 20	< 50	< 2.0
Chloroform			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.1	1.2	NT	0.56 J	0.39 J	1.7	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 10	< 25	NT
Chloromethane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	2.5	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 20	< 50	NT
1,4-Dichlorobenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 10	< 25	NT
1,1-Dichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	4.6	4.3	0.52 J	< 1.0	2.1	3.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.2	< 1.0	< 1.0	< 1.0	NT	30.9	15.7 J	16.8
1,2-Dichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 10	< 25	0.43 J
1,1-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	4.4	6.3	3.4	3.9	4.1	1.5	3.2	3.7	< 1.0	< 1.0	1.3 G	2.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	17.6	< 25	10.5
cis-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	22.6	17.2 J	56.3
trans-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 10	< 25	1.5
1,2-Dichloropropane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 20	< 50	NT
1,4-Dioxane			< 25	< 25	< 25	< 25	< 25 K-	< 50	< 25	< 25	NT	< 25	< 25	< 25	< 25	< 25	NT	< 25	< 25	< 25	< 25	< 25	NT	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	NT	< 250	< 630	NT
Ethylbenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 10	< 25	NT
2-Hexanone			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 50	< 130	NT
4-Isopropyltoluene			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 50	< 130	NT
Methyl tert-butyl ether			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 K-	12.2	12.1	NT	252	78.0	4.9	< 1.0	< 1.0	NT	< 1.0	0.21 J	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	3.5	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 10	< 25	NT
Methylene chloride			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 20	31.4 J	NT
Naphthalene			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 50	< 130	NT
Tert-amyl methyl ether			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	2.2	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 20	< 50	NT
1,1,1,2-Tetrachloroethane			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 50	< 130	NT
Tetrachloroethylene (PCE)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.53 J	1.0 F-	1.2	2.3	1.7	2.3	0.44 J	< 1.0 F-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 F-	< 1.0	< 1.0	0.60 J	< 1.0	< 1.0	178 F-	28.5	17.4	0.89 J F-	0.93 J	NT	13700 F-	7370	6340
Tetrahydrofuran			< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	NT	< 10	< 10	< 10	< 10	< 10	NT	< 10	< 10	< 10	< 10	< 10	NT	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	NT	< 100	< 250	NT
Toluene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	110	0.40 J	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 10	< 25	NT
1,1,1-Trichloroethane (TCA)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	15.3	1.5 J+	6.4	11.3	14.9	2.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.77 J	0.97 J	0.31 J	< 1.0	< 1.0	NT	142	56.5	89.1
1,1,2-Trichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 10	< 25	< 1.0
Trichloroethylene (TCE)			1.6	0.78 J	1.1	1.8	1.7	1.6	3.7	4.8	3.6	4.4	4.9	1.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	4.5	< 1.0	0.52 J	< 1.0	< 1.0	NT	150	84.4	120
Vinyl chloride			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 10	< 25	< 1.0
m,p-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 10	< 25	NT
o-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 10	< 25	NT
Total Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 10	< 25	NT
Metals (Total)	6010B	µg/l	NT	NT	NT	NT	NT	NT		NT	NT	NT	NT	NT		NT	NT	NT	NT	NT		NT	NT	NT	NT	NT	NT	NT	NT		NT	NT	NT	NT	NT	NT
Arsenic									< 10						< 10						< 10									2.9					
Iron									319						6160						< 100									84000					
Manganese									NT						NT						NT									NT					
Metals (Dissolved)	6010C	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Iron																																			
Others			NT	NT	NT	NT	NT	NT		NT	NT	NT	NT	NT		NT	NT	NT	NT	NT		NT	NT	NT	NT	NT	NT	NT	NT		NT		NT	NT	NT
Methane	8015	µg/l							< 10						4.13 J						0.18 J									< 10					
Ethane	8015	µg/l							< 10						< 10						< 10									< 10					
Ethylene	8015	µg/l							< 10						< 10						< 10									< 10					
Alkalinity	E310.1	µg/l							83100						174000						71100									122000					
Chloride	E325.3	µg/l							1870000						100000						235000									142000			1010000		
Chlorine, Total Residual	E330.4	µg/l							NT						NT						NT									NT			< 50		
Iron, Ferrous	3500FE B	µg/l							NT						NT						NT									NT			NT		
Nitrate & Nitrite as N	E353.2	µg/l							12900						100						< 100									2400			NT		
Nitrogen, Nitrate	E353.2	µg/l							12800						< 110						< 110									2300			NT		
Nitrogen, Nitrite	E354.1	µg/l							83						< 10						< 10									54			NT		
Sodium	6010C	µg/l							NT						NT						NT									NT			NT		
Sulfate	E375.4	µg/l							86800						33400						28100									47700			NT		
Sulfide	E376.1	µg/l							< 2000						< 2000						< 2000									< 2000			NT		
Surfactants	E425.1	µg/l							< 100						150						< 100									< 100			NT		
Total Organic Carbon	E415.1	µg/l							1300						12200						1300									5700			NT		

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "< " = The analyte was not detected at a concentration above the specified reporting limit.
5. SHA = Sanborn Head & Associates.
6. FD = Field Duplicate Sample.
7. NT = Not Tested.

Qualifying Notes:

B The analyte found in associated method blank.
C+ The result has a high bias due to surrogate recovery above upper control limits.
E The value exceeds the calibration range.
F+ The result has a high bias due to matrix spike recovery above upper control limits.
F- The result has a low bias due to matrix spike recovery below lower control limits.
G The result is estimated due to duplicate precision outside control limits.
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.
K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.
R The result is rejected due to gross exceedence of minimum response factor criteria.

Table 4-2. Chemical Testing Results - GEI Groundwater Sampling
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sample Location:			MW111 (cont.)			MW112A														MW112A (cont.)													
Sample Name:			MW111	MW111	MW111	MW112A	MW112A	MW112A	MW112A	MW112A	MW112A	MW112A	MW900 (FD)	MW112A	MW901 (FD)	MW112A	MW900 (FD)	MW112A	MW901 (FD)	MW112A	MW901 (FD)	MW112A	MW900 (FD)	MW112A	MW112A	MW900 (FD)	MW112A	MW112A	MW900 (FD)	MW112A	MW112A	MW900 (FD)	MW112A	MW900 (FD)
Well Screen Interval (ft bgs):			4 to 14	4 to 14	4 to 14	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19
Sample Date:			10/10/07	1/10/08	4/17/08	3/23/07	4/16/07	7/18/07	10/10/07	1/10/08	4/17/08	7/14/08	7/14/08	10/22/08	10/22/08	1/12/09	1/12/09	4/13/09	4/13/09	7/14/09	7/14/09	10/14/09	10/14/09	4/12/10	4/12/10	10/27/10	4/20/11	4/20/11	11/16/11	4/16/12	4/16/12	11/12/12	4/24/13	4/24/13
Collected By:			GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
Analyte	**Method**	**Units**																															
Volatile Organic Compounds (VOCs)																																	
Acetone	8260	µg/l	< 250	< 5.0	< 10	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0 J+	< 5.0	< 10	< 10	< 5.0	< 5.0 K-	< 5.0 K-	< 10 K-	< 20	< 20
Benzene			< 25	< 0.50	< 1.0	< 0.50	< 0.50	NT	< 0.50	0.34 J	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.26 J	0.27 J	0.36 J	0.28 J	< 0.50 F-	< 0.50 F-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0
Bromodichloromethane			< 50	< 1.0	< 2.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0
2-Butanone (MEK)			< 250	< 5.0	< 10	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 10	< 5.0	< 5.0	< 5.0	< 10 K-	< 10	< 10
Carbon disulfide			< 250	< 5.0	< 10	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 10	< 5.0	< 5.0	< 5.0	< 10	< 10	< 10
Carbon tetrachloride			< 50	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0
Chlorobenzene			< 50	< 1.0	< 2.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0
Chloroethane			< 100	< 2.0	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 4.0	< 2.0	< 2.0	< 2.0	< 4.0	< 4.0	< 4.0
Chloroform			< 50	1.2	< 2.0	0.35 J	< 1.0	NT	< 1.0	0.32 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.23 J	0.24 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0
Chloromethane			< 100	< 2.0	< 4.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J+	< 2.0 J+	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 4.0	< 2.0	< 2.0	< 2.0	< 4.0	< 4.0	< 4.0
1,4-Dichlorobenzene			< 50	< 1.0	< 2.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0
1,1-Dichloroethane			19.1 J	5.6	4.3 C+	27.6	24.0	6.4	35.6	114	40.9 C+	31.5	31.2	43.7	44.6	70.9	70.7	109	89.6	99.3	107	137	142	83.8	88.3	85.5	38.1	38.8	39.5	71.5	69.0	48.1	24.2	37.0
1,2-Dichloroethane			< 50	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0
1,1-Dichloroethylene			< 50	4.1	3.7 C+	19.7	10.8	6.7	19.7	82.4	36.6 C+	24.5	24.5	39.1	39.3	61.7	61.7	89.2	73.0	91.4	97.7	123	130	74.9	78.6	89.1	57.9	53.0	47.6	86.4	76.2	57.3	30.2	30.0
cis-1,2-Dichloroethylene			63.9	10.6	4.4 C+	< 1.0	0.54 J	0.98 J	4.2	18.7	55.3 C+	81.5	80.9	214	212	225	224	296	247	311	380	390	373	165	196	214	143	140	169	178	185	150	145	112
trans-1,2-Dichloroethylene			< 50	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	7.9 G	2.5 G	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	5.9	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	2.9	< 1.0
1,2-Dichloropropane			< 100	< 2.0	< 4.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 4.0	< 2.0	< 2.0	< 2.0	< 4.0	< 4.0	< 4.0
1,4-Dioxane			< 1300	< 25	< 50	< 25	< 25	NT	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 50	< 50	< 25	< 25	< 25	< 50	< 50	< 50
Ethylbenzene			< 50	< 1.0	< 2.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0
2-Hexanone			< 250	< 5.0	< 10	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 10	< 5.0	< 5.0	< 5.0	< 10	< 10	< 10
4-Isopropyltoluene			< 250	< 5.0	< 10	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 10	< 5.0	< 5.0	< 5.0	< 10	< 10	< 10
Methyl tert-butyl ether			< 50	0.45 J	< 2.0	10.8	13.8	NT	20.3	87.0	20.5 C+	14.9	13.5	32.4	32.2	33.3	32.9	29.9	23.3	41.4	46.0	77.5	81.4	15.9	20.3	50.3	9.2	9.1	22.3	27.1	26.2	28.8	19.0	14.1
Methylene chloride			< 100	< 2.0	< 4.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 4.0	< 2.0	< 2.0	< 2.0	< 4.0	< 4.0	< 4.0
Naphthalene			< 250	< 5.0	< 10	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 10	< 5.0	< 5.0	< 5.0	< 10	< 10	< 10
Tert-amyl methyl ether			< 100	< 2.0	< 4.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 4.0	< 2.0	< 2.0	< 2.0	< 4.0	< 4.0	< 4.0
1,1,1,2-Tetrachloroethane			< 250	< 5.0	< 10	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 10	< 5.0	< 5.0	< 5.0	< 10	< 10	< 10
Tetrachloroethylene (PCE)			8350	3100	1160 C+	261	198	144	159	359	202 C+	165	164	226	228	287	290	290 G	384	359	360	393	405	481	477	561	415	409	363	569 R	604	546	339	581
Tetrahydrofuran			< 500	< 10	< 20	< 10	< 10	NT	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10 F+	< 10 F+	< 10	< 10	< 10	< 10	< 10	< 20	< 20	< 10	< 10	< 10	< 20 F- K-	< 20	< 20
Toluene			< 50	< 1.0	< 2.0	0.54 J	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0
1,1,1-Trichloroethane (TCA)			84.1	41.3	17.6 C+	1.3	0.96 J	0.68 J	1.4	5.8	1.9 C+	1.3	1.2	5.6	5.7	3.3	3.2	3.9	3.1	3.8	4.0	4.2 J+	4.4 J+	3.4	3.4	4.3	7.5	< 2.0	3.3	5.3	4.8	4.1	4.3	6.5
1,1,2-Trichloroethane			< 50	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0
Trichloroethylene (TCE)			125	42.1	19.9 C+	34.0	36.1	26.7	61.3	142	72.8 C+	46.1	44.3	54.9	55.9	88.2	87.9	140	114	137	139	194	198.0	173	179	181	110	108	95.0	171	157	138	87.0	140
Vinyl chloride			< 50	< 1.0	< 2.0	0.84 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.42 J	0.43 J	< 1.0	< 1.0	1.2	1.3	1.0	1.5	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	4.4
m,p-Xylene			< 50	< 1.0	< 2.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0
o-Xylene			< 50	< 1.0	< 2.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0
Total Xylene			< 50	< 1.0	< 2.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0
Metals (Total)	6010B	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Arsenic																								NT			NT			NT			NT	
Iron																								< 0.10 J+			NT			< 100			14200	
Manganese																								875			1570			954			1610	
Metals (Dissolved)	6010C	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Iron																																		
Others			NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT		NT	NT		NT	NT		NT	NT		NT
Methane	8015	µg/l																						0.18 J B			< 0.30			0.66			0.10 J	
Ethane	8015	µg/l																						< 0.10			< 0.10			< 0.10			< 0.10	
Ethylene	8015	µg/l																						< 0.10			< 0.10			< 0.10			< 0.10	
Alkalinity	E310.1	µg/l																						233000			252000			245000			278000	
Chloride	E325.3	µg/l																						810000			915000			655000			857000	
Chlorine, Total Residual	E330.4	µg/l																						< 50 A			< 50			< 50 A			< 50 A F- J	
Iron, Ferrous	3500FE B	µg/l																						NT			NT			NT			NT	
Nitrate & Nitrite as N	E353.2	µg/l																						4700			3500			2600			1300	
Nitrogen, Nitrate	E353.2	µg/l																						4700			3500			2600			1300	
Nitrogen, Nitrite	E354.1	µg/l																						11			< 10			< 10			< 10	
Sodium	6010C	µg/l																						NT			NT			NT			NT	
Sulfate	E375.4	µg/l																						57100			52200			66100			68000	
Sulfide	E376.1	µg/l																						< 2000			< 2000			< 2000			< 2000	
Surfactants	E425.1	µg/l																						< 100			< 100			< 100			< 100	
Total Organic Carbon	E415.1	µg/l																						1200			1100			< 1000			1500	

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "< " = The analyte was not detected at a concentration above the specified reporting limit.
5. SHA = Sanborn Head & Associates.
6. FD = Field Duplicate Sample.
7. NT = Not Tested.

Qualifying Notes:
B The analyte found in associated method blank.
C+ The result has a high bias due to surrogate recovery above upper control limits.
E The value exceeds the calibration range.
F+ The result has a high bias due to matrix spike recovery above upper control limits.
F- The result has a low bias due to matrix spike recovery below lower control limits.
G The result is estimated due to duplicate precision outside control limits.
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.
K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.
R The result is rejected due to gross exceedence of minimum response factor criteria.

Table 4-2. Chemical Testing Results - GEI Groundwater Sampling
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sample Location:			MW112A (cont.)													MW113											MW114						MW115					
Sample Name:			MW112A	MW112A	MW112A	MW112A	MW900 (FD)	MW112A	MW112A	MW112A	MW901 (FD)	MW112A	MW112A	MW112A	MW112A	MW112A	MW113	MW113	MW113	MW900 (FD)	MW113	MW900 (FD)	MW113	MW900 (FD)	MW113	MW900 (FD)	MW114	MW114	MW114	MW114	MW114	MW114	MW115	MW115	MW115 R	MW115	MW115	MW115 R
Well Screen Interval (ft bgs):			4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	4 to 19	10 to 20	10 to 20	10 to 20	10 to 20	10 to 20	10 to 20	10 to 20	10 to 20	10 to 20	10 to 20	10 to 20	7 to 17	7 to 17	7 to 17	7 to 17	7 to 17	7 to 17	10 to 25	10 to 25	10 to 25	10 to 25	10 to 25	10 to 25
Sample Date:			11/18/13	6/11/14	11/18/14	4/17/15	4/17/15	4/28/16	11/21/16	4/18/17	4/18/2017	11/10/2017	4/4/2018	########	4/15/2019	11/22/2019	2/20/07	4/12/07	7/18/07	7/18/07	10/10/07	10/10/07	1/11/08	1/11/08	4/15/08	4/15/08	2/20/07	4/13/07	7/18/07	10/10/07	1/11/08	4/17/08	3/23/07	4/13/07	7/18/07	10/10/07	1/9/08	4/17/08
Collected By:			GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
Analyte	**Method**	**Units**																																			
Volatile Organic Compounds (VOCs)																																					
Acetone	8260	µg/l	< 10 K-	< 10 K-	< 10	< 10	< 10	< 10	< 10	<10	<10	< 20	<25	<25	<25	<10	< 5.0	3.8 J	NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	2.1 J	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0
Benzene			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.43 J	0.23 J	0.23 J	< 1.0	<1.3	<1.3	<1.3	<0.50	< 0.50	< 0.50	NT	NT	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NT	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NT	< 0.50	< 0.50	< 0.50
Bromodichloromethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	< 2.0	<2.5	<2.5	<2.5	<1.0	< 1.0	< 1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	<10	<10	< 20	<25	<25	<25	<10	< 5.0	< 5.0	NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0
Carbon disulfide			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	<2.0	< 4.0	<5.0	<5.0	<5.0	<2.0	< 5.0	0.66 J	NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0
Carbon tetrachloride			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	< 2.0	<2.5	<2.5	<2.5	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	< 2.0	<2.5	<2.5	<2.5	<1.0	< 1.0	< 1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0
Chloroethane			< 2.0	< 2.0	< 2.0 G	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	< 2.0	<2.5	<2.5	<2.5	<1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloroform			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	< 2.0	<2.5	<2.5	<2.5	<1.0	< 1.0	< 1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0
Chloromethane			< 2.0	< 2.0	< 2.0 G	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<1.0	< 2.0	<2.5	<2.5	<2.5	<1.0	< 2.0	< 2.0	NT	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0
1,4-Dichlorobenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	< 2.0	<2.5	<2.5	<2.5	<1.0	< 1.0	< 1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane			73.5	18.3	64.1 G K-	23.2	25.2	14.1	77	34.1	30.1	88.1	25.3	25.3	38.5	36.9	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	< 2.0	<2.5	<2.5	<2.5	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene			86.5	38.5	109 K+	39	42.9	21.5	132	47.7	43.0	92.5	33.0	33.0	57.3	63.1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.43 J	0.33 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethylene			209	150	321	71.1	84.1	108	230	78.2	71.8	155	98.5	98.5	60.6	131	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0 K+	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	< 2.0	<2.5	<2.5	<2.5	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	< 2.0	<2.5	<2.5	<2.5	<1.0	< 2.0	< 2.0	NT	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0
1,4-Dioxane			< 25	< 25	< 25	< 25	< 25	< 25	< 50	<130	<130	< 250	<310	<310	<310	<130	< 25	< 25	NT	NT	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	NT	< 25	< 25	< 25	< 25 J+	< 25	NT	< 25	< 25	< 25
Ethylbenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	< 2.0	<2.5	<2.5	<2.5	<1.0	< 1.0	< 1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0
2-Hexanone			< 5.0 K-	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	<5.0	<5.0	< 10	<13	<13	<13	<5.0	< 5.0	< 5.0	NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0
4-Isopropyltoluene			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	<2.0	< 4.0	<5.0	<5.0	<5.0	<2.0	< 5.0	< 5.0	NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0
Methyl tert-butyl ether			64.6	4.6	47.3 K+	11.9	13.9	3.9	53.9	11.6	11.4	56	19.1	19.1	25.9	21.7	< 1.0	< 1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0
Methylene chloride			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	< 4.0	<5.0	<5.0	<5.0	<2.0	< 2.0	< 2.0	NT	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0
Naphthalene			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	< 10	<13	<13	<13	<5.0	< 5.0	1.2 J	NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0
Tert-amyl methyl ether			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	< 4.0	<5.0	<5.0	<5.0	<2.0	< 2.0	< 2.0	NT	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0
1,1,1,2-Tetrachloroethane			< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	< 2.0	<2.5	<2.5	<2.5	<1.0	< 5.0	< 5.0	NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0
Tetrachloroethylene (PCE)			371	266	398	303	300	258	508	435	404	908	317	317	555	463	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.84 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0
Tetrahydrofuran			< 10	< 10	< 10	< 10	< 10	< 10	< 10	<10	<10	< 20	<25	<25	<25	<10	< 10	< 10	NT	NT	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	NT	< 10	< 10	< 10	< 10	< 10	NT	< 10	< 10	< 10
Toluene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	< 2.0	<2.5	<2.5	<2.5	<1.0	0.44 J	< 1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.34 J	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane (TCA)			8.0	1.5	3.6	1.3	1.4	1.7	6.5	4.1	3.6	11.4	3.6	3.6	5.4	5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	< 2.0	<2.5	<2.5	<2.5	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0
Trichloroethylene (TCE)			146	82.0	117	71	73	61.3	220.0	118.0	107	247	92.3	92.3	136	136	< 1.0	0.82 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0
Vinyl chloride			0.90 J	< 1.0	0.77 J G K-	< 1.0	< 1.0	< 1.0	1.3	<1.0	<1.0	< 2.0	<2.5	<2.5	1.4	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0
m,p-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	< 2.0	<2.5	<2.5	<2.5	<1.0	< 1.0	< 1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0
o-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	< 2.0	<2.5	<2.5	<2.5	<1.0	< 1.0	< 1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0
Total Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	< 2.0	<2.5	<2.5	<2.5	<1.0	< 1.0	< 1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0
Metals (Total)	6010B	µg/l	NT		NT		NT		NT		NT	NT		NT		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Arsenic				NT		NT		NT		NT			NT		NT																							
Iron				NT		NT		NT		NT			NT		NT																							
Manganese				1470		909		1530		627			2620		3360																							
Metals (Dissolved)	6010C	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Iron															NT																							
Others			NT		NT		NT		NT		NT	NT		NT		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methane	8015	µg/l		< 10		< 10		< 10		<10			320		6.7																							
Ethane	8015	µg/l		< 10		< 10		< 10		<10			12.2		<0.23																							
Ethylene	8015	µg/l		< 10		< 10		< 10		<10			<0.31		<0.31																							
Alkalinity	E310.1	µg/l		285000		266000		332000		339000			247000		259																							
Chloride	E325.3	µg/l		815000		700000		700000		439000			170000		517																							
Chlorine, Total Residual	E330.4	µg/l		< 50 A									280		<0.10																							
Iron, Ferrous	3500FE B	µg/l		< 100		< 100		< 100		<100			<200		<0.20																							
Nitrate & Nitrite as N	E353.2	µg/l		650		1200		490		620			<100		0.49																							
Nitrogen, Nitrate	E353.2	µg/l		650		1200		490		620			<110		0.48																							
Nitrogen, Nitrite	E354.1	µg/l		< 10		< 10		< 10		<10			<10		<0.010																							
Sodium	6010C	µg/l		NT		NT		NT		NT			NT		NT																							
Sulfate	E375.4	µg/l		90900		63100		117000		71000			59200		55.1																							
Sulfide	E376.1	µg/l		< 2000									<200		<2.0																							
Surfactants	E425.1	µg/l		< 100		< 100		< 100		<100			<100		<0.10																							
Total Organic Carbon	E415.1	µg/l		< 1000		< 5000		< 1000		<1000			1700		<1.0																							

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "< " = The analyte was not detected at a concentration above the specified reporting limit.
5. SHA = Sanborn Head & Associates.
6. FD = Field Duplicate Sample.
7. NT = Not Tested.

Qualifying Notes:
B The analyte found in associated method blank.
C+ The result has a high bias due to surrogate recovery above upper control limits.
E The value exceeds the calibration range.
F+ The result has a high bias due to matrix spike recovery above upper control limits.
F- The result has a low bias due to matrix spike recovery below lower control limits.
G The result is estimated due to duplicate precision outside control limits.
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.
K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.
R The result is rejected due to gross exceedence of minimum response factor criteria.

Table 4-2. Chemical Testing Results - GEI Groundwater Sampling
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sample Location:			MW116																															
Sample Name:			MW116	MW116	MW116	MW901 (FD)	MW116	MW901 (FD)	MW116	MW901 (FD)	MW116	MW901 (FD)	MW116	MW116	MW116	MW116	MW116	MW116	MW116	MW116	MW901 (FD)	MW116	MW901 (FD)	MW116	MW901 (FD)	MW116	MW901 (FD)	MW116	MW900 (FD)	MW116	MW900 (FD)	MW116	MW900 (FD)	MW116
Well Screen Interval (ft bgs):			5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15	5 to 15
Sample Date:			3/23/07	4/16/07	7/18/07	7/18/07	10/12/07	10/12/07	1/11/08	1/11/08	4/15/08	4/15/08	7/16/08	10/21/08	1/14/09	4/15/09	7/14/09	10/14/09	1/13/10	4/13/10	4/13/10	4/21/11	4/21/11	4/17/12	4/17/12	4/24/13	4/24/13	5/1/14	5/1/14	4/2/15	4/2/15	4/29/16	4/29/16	4/17/17	
Collected By:			GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
Analyte	**Method**	**Units**																																
Volatile Organic Compounds (VOCs)																																		
Acetone	8260	µg/l	< 5.0	< 5.0	NT	NT	< 10 J+	< 10 J+	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 10	< 5.0	< 10	< 5.0	< 10 F+	< 10	< 25	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 20	< 10	< 20	< 20	< 20	< 20	< 20	< 10	<10
Benzene			0.24 J	< 0.50	NT	NT	< 1.0	< 1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 0.50	< 1.0	< 0.50	< 1.0	< 1.0	< 2.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.50	<0.50
Bromodichloromethane			< 1.0	< 1.0	NT	NT	1.1 J	0.99 J	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 1.0	< 2.0	< 2.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	<1.0
2-Butanone (MEK)			< 5.0	< 5.0	NT	NT	< 10 J+	< 10 J+	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 10	< 5.0	< 10	< 5.0	< 10	< 10	< 25	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 10	< 10	< 10	< 10	< 10	< 5.0	<10
Carbon disulfide			< 5.0	< 5.0	NT	NT	< 10	< 10	< 5.0	< 5.0	< 5.0	< 5.0	2.9 J	< 5.0	< 10	< 5.0	< 10	< 10	< 25	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 10	< 10	< 10	< 10	< 10	< 5.0	<2.0
Carbon tetrachloride			< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 1.0	< 2.0	< 2.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	<1.0
Chlorobenzene			< 1.0	< 1.0	NT	NT	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 1.0	< 2.0	< 2.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	<1.0
Chloroethane			< 2.0	< 2.0	2.4	2.3	2.4 J	2.4 J	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	< 4.0	< 2.0	< 4.0	< 4.0	< 10	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 2.0	<1.0
Chloroform			< 1.0	< 1.0	NT	NT	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 1.0	< 2.0	< 2.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	<1.0
Chloromethane			< 2.0	< 2.0	NT	NT	< 4.0	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	< 4.0	< 2.0	< 4.0	< 4.0	< 10	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 2.0	<1.0
1,4-Dichlorobenzene			< 1.0	< 1.0	NT	NT	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 1.0 J+	< 2.0 J+	< 2.0	< 5.0	< 1.0	1.6	1.0	0.82 J	0.77 J	< 2.0	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	<1.0
1,1-Dichloroethane			135	4.4	97.3	96.9	80.1	79.3	18.9	15.6	66.8	64.5	114	109	72.5	101	69.7	92.2	63.9	68.9	27.8	23.4	52.8	51.8	31.5	25.8	38.5	41.9	52.0	49.9	38.3	45.0	49.4	
1,2-Dichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	0.23 J	0.20 J	< 2.0	< 1.0	< 2.0	< 1.0	< 2.0	< 2.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	<1.0
1,1-Dichloroethylene			107	2.7	33.8	34.0	24.8	22.4	14.7	11.8	46.3	45.7	78.4	79.8	56.5	70.6	35.2	68.8	49.1	51.9	22.4	14.1	43.3	42.3	26.7	39.4	46.1	50.3	52.4	50.8	27.7	36.4	35.1	
cis-1,2-Dichloroethylene			103	21.7	415	431	346	341	49.5	42.9	105	102	286	319	146	84.1	92.7	133	80.7	92.1	84.6	68.3	115	112	94.8	144	107	116	114	111	50.6	59	67.5	
trans-1,2-Dichloroethylene			1.8	< 1.0	4.3	4.4	2.5	2.4	0.88 J	1.3	< 1.0	< 1.0	< 2.0	1.3	< 2.0	< 1.0	< 2.0	< 2.0	< 5.0	1.6	1.6	1.8	< 1.0	< 1.0	< 2.0	1.1	< 2.0	< 2.0	1.1 J	<2.0	< 2.0	< 1.0	0.42 J	
1,2-Dichloropropane			< 2.0	< 2.0	NT	NT	< 4.0	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	< 4.0	< 2.0	< 4.0	< 4.0	< 10	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 2.0	<1.0	
1,4-Dioxane			< 25	< 25	NT	NT	< 50	< 50	< 25	< 25	< 25	< 25	< 50	< 25	< 50	< 25	< 50 F-	< 50	< 130	< 25	< 25	< 25	< 25 K-	< 25 K-	< 100	< 50	< 50	< 50	< 50	< 50	< 50	< 50	<130	
Ethylbenzene			< 1.0	< 1.0	NT	NT	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 1.0	< 2.0	< 2.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	<1.0	
2-Hexanone			< 5.0	< 5.0	NT	NT	< 10 J+	< 10 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 10	< 5.0	< 10	< 10	< 25	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 10	< 10	< 10	< 10	< 10	< 5.0	<5.0	
4-Isopropyltoluene			< 5.0	< 5.0	NT	NT	< 10	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 10	< 5.0 J+	< 10 J+	< 10	< 25	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 10	< 10	< 10	< 10	< 10	< 5.0	<2.0	
Methyl tert-butyl ether			12.3	0.40 J	NT	NT	12.5	12.7	2.1 J+	1.3 J+	7.1	6.9	18.2	18.0	9.0	11.7	7.2	8.4	5.4	5.9	4.4	4.4	3.4	3.3	14.1	10.6 K-	4.4	4.8	5.0	4.9	< 2.0	0.79 J	1.6	
Methylene chloride			< 2.0	< 2.0	NT	NT	< 4.0	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	< 4.0	< 2.0	< 4.0	< 4.0	< 10	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 2.0	<2.0	
Naphthalene			< 5.0	< 5.0	NT	NT	< 10	< 10	< 5.0	0.68 J	< 5.0	< 5.0	< 10	< 5.0	< 10	< 5.0 J+	< 10 J+	< 10	< 25	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 10	< 10	< 10	< 10	< 10	< 5.0	<5.0	
Tert-amyl methyl ether			< 2.0	< 2.0	NT	NT	< 4.0	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	< 4.0	< 2.0	< 4.0	< 4.0	< 10	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0 K-	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 2.0	<2.0	
1,1,1,2-Tetrachloroethane			< 5.0	< 5.0	NT	NT	< 10	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 10	< 5.0	< 10	< 10	< 25	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	<1.0	
Tetrachloroethylene (PCE)			1180	32.2	167	168	116	110	267	257 J+	603	607	864	839	795	796 G	1020	1010	860	933	323	166	774	778	527	396	618	670	726	695	450	436	482	
Tetrahydrofuran			30.6	13.8	NT	NT	< 20	< 20	< 10	< 10	< 10	< 10	< 20	< 10	< 20	< 10	< 20 F+	< 20	< 50	< 10	< 10	< 10	< 10	< 10	< 20	< 10	13.3 J	15.7 J	<20	<20	<20	< 10	<10	
Toluene			< 1.0	< 1.0	NT	NT	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 1.0	< 2.0	< 2.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	<1.0	
1,1,1-Trichloroethane (TCA)			21.6	0.67 J	10.6	10.7	9.4	9.2	3.3	2.5	10.7	10.7	16.0	15.6	12.8	16.6	8.5	14.3 J+	8.2	10.2	4.2	3.8	8.0	8.3	6.0	3.0	6.7	7.3	8.0	7.6	3.8	4.4	3.8	
1,1,2-Trichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 1.0	< 2.0	< 2.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	<1.0	
Trichloroethylene (TCE)			358	19.4	72.7	73.2	136	129	66.3	53.6	175	174	257	269	229	341	196	267	195	212	88.7	57.7	181	182	126	95.4	164	182	188	183	113	139	131	
Vinyl chloride			14.1	3.2	185	182	84.9	76.4	3.1	2.3	2.6	2.7	7.2	21.3	13.9	6.3	6.1	6.9	5.7	6.1	13.5	9.0	8.8 K+	8.8 K+	3.8	< 1.0	1.8 J	2.2	3.8	3.8	< 2.0	< 1.0	1.6	
m,p-Xylene			< 1.0	< 1.0	NT	NT	< 2.0	< 2.0	< 1.0	1.2	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 1.0	< 2.0	< 2.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	<1.0	
o-Xylene			< 1.0	< 1.0	NT	NT	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 1.0	< 2.0	< 2.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	<1.0	
Total Xylene			< 1.0	< 1.0	NT	NT	< 2.0	< 2.0	< 1.0	1.2	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 1.0	< 2.0	< 2.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	<1.0	
Metals (Total)	6010B	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Arsenic																																		
Iron																																		
Manganese																																		
Metals (Dissolved)	6010C	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Iron																																		
Others			NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methane	8015	µg/l																																
Ethane	8015	µg/l																																
Ethylene	8015	µg/l																																
Alkalinity	E310.1	µg/l																																
Chloride	E325.3	µg/l																																
Chlorine, Total Residual	E330.4	µg/l																																
Iron, Ferrous	3500FE B	µg/l																																
Nitrate & Nitrite as N	E353.2	µg/l																																
Nitrogen, Nitrate	E353.2	µg/l																																
Nitrogen, Nitrite	E354.1	µg/l																																
Sodium	6010C	µg/l																																
Sulfate	E375.4	µg/l																																
Sulfide	E376.1	µg/l																																
Surfactants	E425.1	µg/l																																
Total Organic Carbon	E415.1	µg/l																																

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "< " = The analyte was not detected at a concentration above the specified reporting limit.
5. SHA = Sanborn Head & Associates.
6. FD = Field Duplicate Sample.
7. NT = Not Tested.

Qualifying Notes:
B The analyte found in associated method blank.
C+ The result has a high bias due to surrogate recovery above upper control limits.
E The value exceeds the calibration range.
F+ The result has a high bias due to matrix spike recovery above upper control limits.
F- The result has a low bias due to matrix spike recovery below lower control limits.
G The result is estimated due to duplicate precision outside control limits.
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.
K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.
R The result is rejected due to gross exceedence of minimum response factor criteria.

Table 4-2. Chemical Testing Results - GEI Groundwater Sampling
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sample Location:			MW116 (cont.)				
Sample Name:			MW900 (FD)	MW116	MW900 (FD)	MW116	MW900 (FD)
Well Screen Interval (ft bgs):			5 to 15	5 to 15	5 to 15	5 to 15	5 to 15
Sample Date:			4/17/17	4/4/18	4/4/18	4/16/19	4/16/19
Collected By:			GEI	GEI	GEI	GEI	GEI
Analyte	**Method**	**Units**					
Volatile Organic Compounds (VOCs)							
Acetone	8260	µg/l	<10	<10	<10	<10	<10
Benzene			<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane			<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)			<10	<10	<10	<10	<10
Carbon disulfide			<2.0	<2.0	<2.0	<2.0	<2.0
Carbon tetrachloride			<1.0	<1.0	<1.0	<1.0	<1.0
Chlorobenzene			<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane			<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform			<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane			<1.0	<1.0	<1.0	<1.0	<1.0
1,4-Dichlorobenzene			<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane			49.8	44.1	46.2	22.7	53.9
1,2-Dichloroethane			<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethylene			34.4	19.7	20.9	9.4	31.3
cis-1,2-Dichloroethylene			67.2	42.6	44.2	27.3	112
trans-1,2-Dichloroethylene			0.45 J	1.1	1.2	<1.0	<1.0
1,2-Dichloropropane			<1.0	<1.0	<1.0	<1.0	<1.0
1,4-Dioxane			<130	<130	<130	<130	<130
Ethylbenzene			<1.0	<1.0	<1.0	<1.0	<1.0
2-Hexanone			<5.0	<5.0	<5.0	<5.0	<5.0
4-Isopropyltoluene			<2.0	<2.0	<2.0	<2.0	<2.0
Methyl tert-butyl ether			1.6	1.1	1.2	<1.0	3.5
Methylene chloride			<2.0	<2.0	<2.0	<2.0	<2.0
Naphthalene			<5.0	<5.0	<5.0	<5.0	<5.0
Tert-amyl methyl ether			<2.0	<2.0	<2.0	<2.0	<2.0
1,1,1,2-Tetrachloroethane			<1.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethylene (PCE)			456	233	253	129	404
Tetrahydrofuran			<10	<10	<10	<10	<10
Toluene			<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane (TCA)			3.7	1.8	2.0	1.0	2.6
1,1,2-Trichloroethane			<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethylene (TCE)			129	83.3	86.3	37.0	157
Vinyl chloride			1.4	<1.0	<1.0	<1.0	20.2
m,p-Xylene			<1.0	<1.0	<1.0	<1.0	<1.0
o-Xylene			<1.0	<1.0	<1.0	<1.0	<1.0
Total Xylene			<1.0	<1.0	<1.0	<1.0	<1.0
Metals (Total)	6010B	µg/l	NT	NT	NT	NT	NT
Arsenic							
Iron							
Manganese							
Metals (Dissolved)	6010C	µg/l	NT	NT	NT	NT	NT
Iron							
Others			NT	NT	NT	NT	NT
Methane	8015	µg/l					
Ethane	8015	µg/l					
Ethylene	8015	µg/l					
Alkalinity	E310.1	µg/l					
Chloride	E325.3	µg/l					
Chlorine, Total Residual	E330.4	µg/l					
Iron, Ferrous	3500FE B	µg/l					
Nitrate & Nitrite as N	E353.2	µg/l					
Nitrogen, Nitrate	E353.2	µg/l					
Nitrogen, Nitrite	E354.1	µg/l					
Sodium	6010C	µg/l					
Sulfate	E375.4	µg/l					
Sulfide	E376.1	µg/l					
Surfactants	E425.1	µg/l					
Total Organic Carbon	E415.1	µg/l					

Sample Location:	MW117D									
Sample Name:	MW117D	MW117D	MW117D	MW117D	MW117D	MW117D	MW117D	MW117D	MW117D	MW117D
Well Screen Interval (ft bgs):	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70
Sample Date:	7/19/07	10/11/07	1/15/08	4/16/08	7/16/08	10/21/08	1/13/09	4/14/09	7/15/09	10/14/09
Collected By:	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
Volatile Organic Compounds (VOCs)										
Acetone	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0
Benzene	NT	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon disulfide	NT	< 5.0	< 5.0	6.5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon tetrachloride	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloroform	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	NT	< 2.0	< 2.0	< 2.0 J+	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,4-Dichlorobenzene	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,4-Dioxane	NT	< 25	< 25	< 25	< 25	< 25	< 25 J+	< 25 J+	< 25	< 25
Ethylbenzene	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Hexanone	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Isopropyltoluene	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methyl tert-butyl ether	NT	1.6	2.3	1.5	< 1.0	1.5	0.96 J	0.86 J	1.3	1.5
Methylene chloride	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Naphthalene	NT	< 5.0	4.9 J	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0
Tert-amyl methyl ether	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,1,1,2-Tetrachloroethane	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tetrachloroethylene (PCE)	0.54 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrahydrofuran	NT	< 10	< 10	< 10	< 10	< 10	< 10	< 10 J+	< 10	< 10
Toluene	NT	0.98 J	< 1.0	0.34 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane (TCA)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene (TCE)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m,p-Xylene	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Xylene	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Metals (Total)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Metals (Dissolved)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Others	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Sample Location:	MW117D (continued)									
Sample Name:	MW117D	MW117D	MW117D	MW117D	MW117D	MW117D	MW117D	MW117D	MW117D	MW117D
Well Screen Interval (ft bgs):	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70
Sample Date:	4/13/10	4/20/11	4/16/12	4/24/13	5/1/14	4/2/15	4/28/16	4/17/17	4/3/18	4/15/19
Collected By:	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
Volatile Organic Compounds (VOCs)										
Acetone	< 5.0	< 5.0	< 5.0	< 10	< 10	< 10	< 10	<10	<10	<10
Benzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.50	<0.50	<0.5
Bromodichloromethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<10	<10	<10
Carbon disulfide	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	<2.0	<2.0
Carbon tetrachloride	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
Chlorobenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
Chloroethane	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0
Chloroform	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	2.0	0.43 J	<1.0	<1.0	<1.0
Chloromethane	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0
1,4-Dichlorobenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
1,2-Dichloroethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
1,1-Dichloroethylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0
1,4-Dioxane	< 25	< 25	< 25	< 25	< 25	< 25	< 25	<130	<130	<130
Ethylbenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
2-Hexanone	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0
4-Isopropyltoluene	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	<2.0	<2.0
Methyl tert-butyl ether	1.2	< 1.0	< 1.0	6.8	< 1.0	< 1.0	0.66 J	1.3	<1.0	1.4
Methylene chloride	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0
Naphthalene	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0
Tert-amyl methyl ether	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0
1,1,1,2-Tetrachloroethane	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethylene (PCE)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
Tetrahydrofuran	< 10	< 10	< 10	< 10	< 10	< 10	< 10	<10	<10	<10
Toluene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane (TCA)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
Trichloroethylene (TCE)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
Vinyl chloride	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
m,p-Xylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
o-Xylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
Total Xylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
Metals (Total)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Metals (Dissolved)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Others	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Sample Location:	MW117S							
Sample Name:	MW117S	MW117S	MW117S	MW117S	MW117S	MW117S	MW117S	MW117S
Well Screen Interval (ft bgs):	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20
Sample Date:	7/18/07	10/15/07	1/11/08	4/16/08	7/16/08	10/21/08	1/13/09	4/14/09
Collected By:	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
Volatile Organic Compounds (VOCs)								
Acetone	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0
Benzene	NT	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon disulfide	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon tetrachloride	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloroform	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	NT	< 2.0	< 2.0	< 2.0 J+	< 2.0	< 2.0	< 2.0	< 2.0
1,4-Dichlorobenzene	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,4-Dioxane	NT	< 25	< 25	< 25	< 25	< 25	< 25 J+	< 25 J+
Ethylbenzene	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Hexanone	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Isopropyltoluene	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methyl tert-butyl ether	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methylene chloride	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Naphthalene	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tert-amyl methyl ether	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,1,1,2-Tetrachloroethane	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tetrachloroethylene (PCE)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrahydrofuran	NT	< 10	< 10	< 10	< 10	< 10	< 10	< 10 J+
Toluene	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane (TCA)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene (TCE)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m,p-Xylene	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Xylene	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Metals (Total)	NT	NT	NT	NT	NT	NT	NT	NT
Metals (Dissolved)	NT	NT	NT	NT	NT	NT	NT	NT
Others	NT	NT	NT	NT	NT	NT	NT	NT

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "< " = The analyte was not detected at a concentration above the specified reporting limit.
5. SHA = Sanborn Head & Associates.
6. FD = Field Duplicate Sample.
7. NT = Not Tested.

Qualifying Notes:
- B The analyte found in associated method blank.
- C+ The result has a high bias due to surrogate recovery above upper control limits.
- E The value exceeds the calibration range.
- F+ The result has a high bias due to matrix spike recovery above upper control limits.
- F- The result has a low bias due to matrix spike recovery below lower control limits.
- G The result is estimated due to duplicate precision outside control limits.
- J The reported result is below the laboratory reporting limit and is estimated.
- J+ The reported result is estimated.
- K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
- K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.
- R The result is rejected due to gross exceedence of minimum response factor criteria.

Table 4-2. Chemical Testing Results - GEI Groundwater Sampling
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sample Location:			MW117S (cont.)												MW117T																			MW118D		
Sample Name:			MW117S	MW117S	MW117S	MW117S	MW117S	MW117S	MW117S	MW117S	MW117S	MW117S	MW117S	MW117S	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW118D	MW118D	MW118D
Well Screen Interval (ft bgs):			5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	70 to 80	70 to 80	70 to 80
Sample Date:			7/15/09	10/14/09	4/13/10	4/21/11	4/16/12	4/24/13	5/1/14	4/2/15	4/27/16	4/17/17	4/3/18	4/15/19	7/19/07	10/11/07	1/15/08	4/16/08	7/16/08	10/21/08	1/13/09	4/14/09	7/15/09	10/16/09	4/13/10	4/22/11	4/16/12	4/23/13	5/1/14	4/2/15	4/27/16	4/17/17	4/3/18	4/15/19	7/20/07	8/30/07	10/11/07
Collected By:			GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
Analyte	**Method**	**Units**																																		
Volatile Organic Compounds (VOCs)																																				
Acetone	8260	µg/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 10	< 10	< 10	<10	<10	<0.10	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 K-	< 10	< 10	< 10	< 10	<10	<10	<10	NT	NT	< 5.0
Benzene			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.50	<0.50	<0.5	NT	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.50	<0.50	<0.50	NT	NT	< 0.50
Bromodichloromethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	NT	< 1.0
2-Butanone (MEK)			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<10	<10	<10	NT	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<10	<10	<10	NT	NT	< 5.0
Carbon disulfide			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	<2.0	<2.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	<2.0	<2.0	NT	NT	< 5.0
Carbon tetrachloride			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	NT	< 1.0
Chloroethane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	< 2.0	< 2.0	< 2.0
Chloroform			< 1.0	< 1.0	< 1.0	< 1.0	1.3	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	NT	< 1.0
Chloromethane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	NT	< 2.0	< 2.0	< 2.0 J+	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	NT	NT	< 2.0
1,4-Dichlorobenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	NT	< 1.0
1,1-Dichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	20.3	21.4	31.2
1,2-Dichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	0.55 J	< 1.0	< 1.0
trans-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	NT	NT	< 2.0
1,4-Dioxane			< 25	< 25	< 25	< 25	< 25	< 50	< 25	< 25	< 25	<130	<130	<130	NT	< 25	< 25	< 25	< 25	< 25	< 25 J+	< 25	< 25	< 25	< 25	< 25	< 50	< 25	< 25	< 25	<130	<130	<130	NT	NT	< 25
Ethylbenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	NT	< 1.0
2-Hexanone			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	NT	NT	< 5.0
4-Isopropyltoluene			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	<2.0	<2.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	<2.0	<2.0	NT	NT	< 5.0
Methyl tert-butyl ether			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 K-	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	3.4	9.8	4.8	1.7	2.8	1.9	4.1	1.5	7.0	1.6	1.4	< 1.0	< 1.0 K-	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	NT	< 1.0
Methylene chloride			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0	NT	NT	< 2.0
Naphthalene			< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	NT	NT	< 5.0
Tert-amyl methyl ether			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0	NT	NT	< 2.0
1,1,1,2-Tetrachloroethane			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<1.0	<1.0	<1.0	<1.0	<1.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<1.0	<1.0	<1.0	<1.0	<1.0	NT	NT	< 5.0
Tetrachloroethylene (PCE)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	1.3	7.0	8.4	8.2
Tetrahydrofuran			< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	<10	<10	<10	NT	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	<10	<10	<10	NT	NT	< 10
Toluene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	NT	< 1.0
1,1,1-Trichloroethane (TCA)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene (TCE)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	1.2	3.9	1.8
Vinyl chloride			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	2.4	< 1.0
m,p-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	NT	< 1.0
o-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	NT	< 1.0
Total Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	NT	< 1.0
Metals (Total)	6010B	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Arsenic																																				
Iron																																				
Manganese																																				
Metals (Dissolved)	6010C	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Iron																																				
Others			NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methane	8015	µg/l																																		
Ethane	8015	µg/l																																		
Ethylene	8015	µg/l																																		
Alkalinity	E310.1	µg/l																																		
Chloride	E325.3	µg/l																																		
Chlorine, Total Residual	E330.4	µg/l																																		
Iron, Ferrous	3500FE B	µg/l																																		
Nitrate & Nitrite as N	E353.2	µg/l																																		
Nitrogen, Nitrate	E353.2	µg/l																																		
Nitrogen, Nitrite	E354.1	µg/l																																		
Sodium	6010C	µg/l																																		
Sulfate	E375.4	µg/l																																		
Sulfide	E376.1	µg/l																																		
Surfactants	E425.1	µg/l																																		
Total Organic Carbon	E415.1	µg/l																																		

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "< *" = The analyte was not detected at a concentration above the specified reporting limit.
5. SHA = Sanborn Head & Associates.
6. FD = Field Duplicate Sample.
7. NT = Not Tested.

Qualifying Notes:
B The analyte found in associated method blank.
C+ The result has a high bias due to surrogate recovery above upper control limits.
E The value exceeds the calibration range.
F+ The result has a high bias due to matrix spike recovery above upper control limits.
F- The result has a low bias due to matrix spike recovery below lower control limits.
G The result is estimated due to duplicate precision outside control limits.
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.
K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.
R The result is rejected due to gross exceedence of minimum response factor criteria.

Table 4-2. Chemical Testing Results - GEI Groundwater Sampling
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sample Location:			MW118D (cont.)																										MW118S									
Sample Name:			MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW901 (FD	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118S	MW118S	MW118S	MW118S	MW118S	MW118S	MW118S	MW118S	MW118S	MW118S
Well Screen Interval (ft bgs):			70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	3 to 14	3 to 14	3 to 14	3 to 14	3 to 14	3 to 14	3 to 14	3 to 14	3 to 14	3 to 14
Sample Date:			1/16/08	4/16/08	7/16/08	10/21/08	1/14/09	4/14/09	7/15/09	10/14/09	10/14/09	4/12/10	4/20/11	4/16/12	11/12/12	4/24/13	11/18/13	5/1/14	11/18/14	4/2/15	11/19/15	4/28/16	11/22/16	4/17/2017	11/8/2017	4/3/2018	11/15/2018	4/15/2019	11/22/2019	7/20/07	8/30/07	10/1/07	1/11/08	4/16/08	7/15/08	10/21/08	1/14/09	4/15/09	7/15/09
Collected By:			GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
Analyte	**Method**	**Units**																																				
Volatile Organic Compounds (VOCs)																																						
Acetone	8260	µg/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0 K-	< 10	< 10 K-	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0
Benzene			0.24 J	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NT	NT	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 J+	< 0.50
Bromodichloromethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0
2-Butanone (MEK)			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 K-	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	<10	< 10	< 10	< 10	< 10	< 10	NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0
Carbon disulfide			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	1.6 J	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	NT	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0 J+	< 5.0
Carbon tetrachloride			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0
Chlorobenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0
Chloroethane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 G	< 2.0	4.8	3.1	3.1	1.1	3.4	3.7	1.1	<1.0	<1.0	<1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J+	< 2.0
Chloroform			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0
Chloromethane			< 2.0	< 2.0 J+	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 G	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	NT	< 2.0	< 2.0	< 2.0 J+	< 2.0	< 2.0	< 2.0	< 2.0 J+	< 2.0
1,4-Dichlorobenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0
1,1-Dichloroethane			31.7	33.3	34.3	22.8	26.0	22.8	28.7	41.2	39.5	40.0	43.5	36.9	41.4	38.5	39.1	40.6	47.9	46.6	39.3	43.9	37.7	34.8	27.4	21.9	20.0	18.6	33.9	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0
1,2-Dichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0
1,1-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.55 J	< 1.0	< 1.0	< 1.0	0.79 J K+	0.90 J	1.6	1.8	0.85 J	0.78 J	< 1.0	< 1.0	< 1.0	<1.0	2.6	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0
cis-1,2-Dichloroethylene			< 1.0	< 1.0	0.96 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	2.3	1.2	1.6	2.7	5.1	6.5	6.8	6.9	5.6	27.8	8.6	7.9	5	4.3	3.7	3.2	57.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0
trans-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.74 J	0.68 J	< 1.0 K+	0.62 J	2.2	2.9	0.81 J	0.55 J	< 1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0
1,2-Dichloropropane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J+	< 2.0
1,4-Dioxane			< 25	< 25	< 25	< 25	< 25	< 25 J+	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 50	< 50	< 25	< 25	< 25	< 25	< 25	< 50	<130	< 130	< 130	< 130	< 130	< 130	NT	NT	< 25	< 25	< 25	< 25	< 25	< 25	< 25 J+	< 25
Ethylbenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0
2-Hexanone			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 K-	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	<5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0
4-Isopropyltoluene			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	0.93 J	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0
Methyl tert-butyl ether			0.40 J	< 1.0	0.40 J	< 1.0	< 1.0	0.38 J	0.39 J	0.55 J	0.51 J	< 1.0	0.83 J	< 1.0	0.63 J	< 1.0	0.46 J	< 1.0	1.9 K+	0.69 J	0.89 J	< 1.0	1.3	0.81 J	< 1.0	1.1	1.3	1.3	<1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0
Methylene chloride			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J+	< 2.0
Naphthalene			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	1.1 J	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0 J+
Tert-amyl methyl ether			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J+	< 2.0
1,1,1,2-Tetrachloroethane			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tetrachloroethylene (PCE)			6.1	5.7	7.1	2.1	1.2	< 1.0	2.3	0.93 J	1.1	1.5	4.6	8.4	4.3	5.8	1.3	< 1.0	2.2	5.1	39.7	49.8	6.5	5.8	2.7	2.7	1.8	1.6	40.9	0.39 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrahydrofuran			< 10	< 10	< 10	< 10	< 10	< 10 J+	< 10	< 10	< 10	< 10	< 10	< 10	< 10 F- K-	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	<10	< 10	< 10	< 10	< 10	< 10	NT	NT	< 10	< 10	< 10	< 10	< 10	< 10	< 10 J+	< 10
Toluene			0.62 J	< 1.0	0.27 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0
1,1,1-Trichloroethane (TCA)			< 1.0	< 1.0	< 5.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0
1,1,2-Trichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0
Trichloroethylene (TCE)			0.94 J	1.0	1.9	< 1.0	1.9	1.5	3.0	6.1	6.3	10.0	11.9	7.4	11.5	7.7	7.3	4.3	6.9	4.6	17.6	14.4	3.3	2.6	1.7	1.5	1.5	1.1	11.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0
Vinyl chloride			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	2.1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 G K-	< 1.0	1.9	20.2	3.1	0.93 J	2.4	1.9	< 1.0	1.1	11.8	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0
m,p-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0
o-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0
Total Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0
Metals (Total)	6010B	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Arsenic																																						
Iron																																						
Manganese																																						
Metals (Dissolved)	6010C	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Iron																																						
Others			NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methane	8015	µg/l																																				
Ethane	8015	µg/l																																				
Ethylene	8015	µg/l																																				
Alkalinity	E310.1	µg/l																																				
Chloride	E325.3	µg/l																																				
Chlorine, Total Residual	E330.4	µg/l																																				
Iron, Ferrous	3500FE B	µg/l																																				
Nitrate & Nitrite as N	E353.2	µg/l																																				
Nitrogen, Nitrate	E353.2	µg/l																																				
Nitrogen, Nitrite	E354.1	µg/l																																				
Sodium	6010C	µg/l																																				
Sulfate	E375.4	µg/l																																				
Sulfide	E376.1	µg/l																																				
Surfactants	E425.1	µg/l																																				
Total Organic Carbon	E415.1	µg/l																																				

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "< " = The analyte was not detected at a concentration above the specified reporting limit.
5. SHA = Sanborn Head & Associates.
6. FD = Field Duplicate Sample.
7. NT = Not Tested.

Qualifying Notes:
B The analyte found in associated method blank.
C+ The result has a high bias due to surrogate recovery above upper control limits.
E The value exceeds the calibration range.
F+ The result has a high bias due to matrix spike recovery above upper control limits.
F- The result has a low bias due to matrix spike recovery below lower control limits.
G The result is estimated due to duplicate precision outside control limits.
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.
K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.
R The result is rejected due to gross exceedence of minimum response factor criteria.

Table 4-2. Chemical Testing Results - GEI Groundwater Sampling
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sample Location:			MW118S (cont.)										MW118T																				
Sample Name:			MW118S	MW118S	MW118S	MW118S	MW118S	MW118S	MW118S	MW118S	MW118S	MW118S	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T
Well Screen Interval (ft bgs):			3 to 14	3 to 14	3 to 14	3 to 14	3 to 14	3 to 14	3 to 14	3 to 14	3 to 14	3 to 14	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5
Sample Date:			10/14/09	4/12/10	4/20/11	4/24/13	5/1/14	4/2/15	4/28/16	4/17/17	4/3/18	4/15/19	7/20/07	8/30/07	10/11/07	1/15/08	4/16/08	7/15/08	10/21/08	1/14/09	4/14/09	7/14/09	10/15/09	4/12/10	4/20/11	4/17/12	4/24/13	5/1/14	4/3/15	4/28/16	4/17/17	4/3/18	4/16/19
Collected By:			GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
Analyte	**Method**	**Units**																															
Volatile Organic Compounds (VOCs)																																	
Acetone	8260	µg/l	< 5.0	< 5.0 J+	< 5.0	< 10	< 10	< 10	< 10	<10	<10	<10	NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 10	< 10	< 10	< 10	<10	<10	<10
Benzene			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.50	<0.50	<0.50	NT	NT	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<10	<10	<10	NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<10	<10	<10
Carbon disulfide			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	<2.0	<2.0	NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	<2.0	<2.0
Carbon tetrachloride			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
Chlorobenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
Chloroethane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0
Chloroform			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
Chloromethane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	NT	NT	< 2.0	< 2.0	< 2.0 J+	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0
1,4-Dichlorobenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	35.4	34.4	44.2	42.3	42.0	41.9	37.0	33.4	33.6	40.0	53.3 J+	37.8	35.9	28.8	26.9	28.4	31.3	31.3	26.7	22.4	5.8
1,2-Dichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
1,1-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.36 J	<1.0	<1.0
cis-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	0.45 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.45 J	< 1.0	0.55 J	<1.0	<1.0
trans-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	NT	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0
1,4-Dioxane			< 25	< 25	< 25	< 50	< 25	< 25	< 25	<130	<130	<130	NT	NT	< 25	< 25	< 25 J+	< 25	< 25	< 25	< 25 J+	< 25	< 25	< 25	< 25	< 25	< 25	< 50	< 25	< 25	< 25	<130	<130	<130
Ethylbenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
2-Hexanone			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0
4-Isopropyltoluene			< 5.0	< 5.0	21.9	< 5.0	2.9 J	6.0	< 5.0	10.3	<2.0	<2.0	NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	<2.0	<2.0
Methyl tert-butyl ether			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5.0	<5.0	<5.0	NT	NT	2.4	3.1	2.2	2.5	2.2	2.3	2.0	1.9	7.5	1.2	2.4	1.8	7.1	0.94 J	1.5	1.1	1.9	1.6	<1.0
Methylene chloride			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0	NT	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0
Naphthalene			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0
Tert-amyl methyl ether			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0	NT	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J+	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0
1,1,1,2-Tetrachloroethane			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<1.0	<1.0	<1.0	<1.0	<1.0	NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethylene (PCE)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.29 J	< 1.0	0.38 J	<1.0	<1.0	3.0	3.8	2.2	2.9	2.7	2.5	2.4	2.1	2.0	1.7	2.8	1.6	2.1	2.1	1.5	1.0	1.3	2.0	0.90 J	<1.0	<1.0
Tetrahydrofuran			< 10	< 10	< 10	< 10	< 10	< 10	< 10	<10	<10	<10	NT	NT	< 10	< 10	< 10 J+	< 10	< 10	< 10	< 10 J+	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	<10	<10	<10
Toluene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane (TCA)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
Trichloroethylene (TCE)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	0.31 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.50 J	0.80 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.26 J	0.62 J	<1.0	<1.0	<1.0
Vinyl chloride			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	2.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 K+	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
m,p-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
o-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
Total Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
Metals (Total)	6010B	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Arsenic																																	
Iron																																	
Manganese																																	
Metals (Dissolved)	6010C	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Iron																																	
Others			NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methane	8015	µg/l																															
Ethane	8015	µg/l																															
Ethylene	8015	µg/l																															
Alkalinity	E310.1	µg/l																															
Chloride	E325.3	µg/l																															
Chlorine, Total Residual	E330.4	µg/l																															
Iron, Ferrous	3500FE B	µg/l																															
Nitrate & Nitrite as N	E353.2	µg/l																															
Nitrogen, Nitrate	E353.2	µg/l																															
Nitrogen, Nitrite	E354.1	µg/l																															
Sodium	6010C	µg/l																															
Sulfate	E375.4	µg/l																															
Sulfide	E376.1	µg/l																															
Surfactants	E425.1	µg/l																															
Total Organic Carbon	E415.1	µg/l																															

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "< " = The analyte was not detected at a concentration above the specified reporting limit.
5. SHA = Sanborn Head & Associates.
6. FD = Field Duplicate Sample.
7. NT = Not Tested.

Qualifying Notes:
B The analyte found in associated method blank.
C+ The result has a high bias due to surrogate recovery above upper control limits.
E The value exceeds the calibration range.
F+ The result has a high bias due to matrix spike recovery above upper control limits.
F- The result has a low bias due to matrix spike recovery below lower control limits.
G The result is estimated due to duplicate precision outside control limits.
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.
K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.
R The result is rejected due to gross exceedence of minimum response factor criteria.

Table 4-2. Chemical Testing Results - GEI Groundwater Sampling
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sample Location:			MW119S																				MW119T										
Sample Name:			MW119S	MW119S	MW119S	MW119S	MW119S	MW119S	MW119S	MW119S	MW119S	MW119S	MW119S	MW119S	MW119S	MW119S	MW119S	MW119S	MW119S	MW119S	MW119S	MW119S	MW119T	MW119T	MW119T	MW119T	MW119T	MW119T	MW119T	MW119T	MW119T	MW119T	MW119T
Well Screen Interval (ft bgs):			5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	42 to 47	42 to 47	42 to 47	42 to 47	42 to 47	42 to 47	42 to 47	42 to 47	42 to 47	42 to 47	42 to 47
Sample Date:			8/22/07	10/12/07	1/15/08	4/16/08	7/15/08	10/22/08	1/13/09	4/13/09	7/15/09	10/15/09	4/13/10	4/22/11	4/16/12	4/23/13	5/1/14	4/2/15	4/28/16	4/18/17	4/3/18	4/16/19	8/22/07	10/12/07	1/16/08	4/16/08	7/15/08	10/22/08	1/13/09	4/13/09	7/15/09	10/15/09	4/13/10
Collected By:			GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
Analyte	**Method**	**Units**																															
Volatile Organic Compounds (VOCs)																																	
Acetone	8260	µg/l	< 5.0 J+	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	6.4 K-	< 10	< 10	< 10	< 10	<10	<10	<10	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0
Benzene			< 0.50 J+	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.50	<0.50	<0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane			< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)			< 5.0 J+	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<10	<10	<10	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon disulfide			< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	<2.0	<2.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon tetrachloride			< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene			< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane			< 2.0 J+	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloroform			< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane			< 2.0 J+	< 2.0	< 2.0	< 2.0 J+	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	9.2 J+	< 2.0	< 2.0	< 2.0 J+	< 2.0	< 2.0	< 2.0	< 2.0	1.4 J	< 2.0
1,4-Dichlorobenzene			< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane			< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	10.4 J+	11.0	10.9	10.4	11.0	5.3	9.0	9.1	7.7	10.8 J+	10.2
1,2-Dichloroethane			< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene			< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	2.0 J+	6.4	6.0	6.2	5.8	< 1.0	5.1	5.0	4.6	6.1 J+	5.4
cis-1,2-Dichloroethylene			< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	0.54 J J+	1.2	1.1	1.2	1.1	< 1.0	0.20 J	1.0	0.66 J	0.94 J J+	< 1.0
trans-1,2-Dichloroethylene			< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane			< 2.0 J+	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,4-Dioxane			< 25 J+	< 25	< 25	< 25	< 25	< 25	< 25 J+	< 25	< 25	< 25	< 25	< 25	< 25	< 50	< 25	< 25	< 25	<130	<130	<130	< 25	< 25	< 25	< 25	< 25	< 25	< 25 J+	< 25	< 25	< 25	< 25
Ethylbenzene			< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Hexanone			< 5.0 J+	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Isopropyltoluene			< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	<2.0	<2.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methyl tert-butyl ether			5.2 J+	2.0	2.1	0.83 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 K-	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	4.1 J+	0.66 J	0.64 J	0.50 J	< 1.0	< 1.0	0.47 J	0.37 J	0.34 J	< 1.0	< 1.0
Methylene chloride			< 2.0 J+	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Naphthalene			< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0
Tert-amyl methyl ether			< 2.0 J+	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J+	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J+	< 2.0
1,1,1,2-Tetrachloroethane			< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<1.0	<1.0	<1.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tetrachloroethylene (PCE)			< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	94.3 J+	105	85.0	86.3	81.2	17.5	78.8	72.2	85.8	72.5	85.4
Tetrahydrofuran			< 10 J+	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	<10	<10	<10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Toluene			< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane (TCA)			< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	0.69 J	0.52 J	2.6	< 1.0	< 1.0	0.46 J	< 1.0	0.54 J	< 1.0	< 1.0
1,1,2-Trichloroethane			< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene (TCE)			< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	25.9 J+	29.6	26.7	26.8	26.7	6.7	24.9	23.7	26.4	23.0	27.1
Vinyl chloride			< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m,p-Xylene			< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene			< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Xylene			< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Metals (Total)	6010B	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Arsenic																																	
Iron																																	
Manganese																																	
Metals (Dissolved)	6010C	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Iron																																	
Others			NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methane	8015	µg/l																															
Ethane	8015	µg/l																															
Ethylene	8015	µg/l																															
Alkalinity	E310.1	µg/l																															
Chloride	E325.3	µg/l																															
Chlorine, Total Residual	E330.4	µg/l																															
Iron, Ferrous	3500FE B	µg/l																															
Nitrate & Nitrite as N	E353.2	µg/l																															
Nitrogen, Nitrate	E353.2	µg/l																															
Nitrogen, Nitrite	E354.1	µg/l																															
Sodium	6010C	µg/l																															
Sulfate	E375.4	µg/l																															
Sulfide	E376.1	µg/l																															
Surfactants	E425.1	µg/l																															
Total Organic Carbon	E415.1	µg/l																															

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "< " = The analyte was not detected at a concentration above the specified reporting limit.
5. SHA = Sanborn Head & Associates.
6. FD = Field Duplicate Sample.
7. NT = Not Tested.

Qualifying Notes:
B The analyte found in associated method blank.
C+ The result has a high bias due to surrogate recovery above upper control limits.
E The value exceeds the calibration range.
F+ The result has a high bias due to matrix spike recovery above upper control limits.
F- The result has a low bias due to matrix spike recovery below lower control limits.
G The result is estimated due to duplicate precision outside control limits.
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.
K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.
R The result is rejected due to gross exceedence of minimum response factor criteria.

Table 4-2. Chemical Testing Results - GEI Groundwater Sampling
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sample Location:			MW119T (cont.)									MW120D																			MW120S		
Sample Name:			MW119T	MW119T	MW119T	MW119T	MW119T	MW119T	MW119T	MW119T	MW119T	MW120D	MW120D	MW120D	MW120D	MW120D	MW120D	MW120D	MW120D	MW120D	MW120D	MW120D	MW120D	MW120D	MW120D	MW120D	MW120D	MW120D	MW120D	MW120D	MW120S	MW120S	MW120S
Well Screen Interval (ft bgs):			42 to 47	42 to 47	42 to 47	42 to 47	42 to 47	42 to 47	42 to 47	42 to 47	42 to 47	28 to 38	28 to 38	28 to 38	28 to 38	28 to 38	28 to 38	28 to 38	28 to 38	28 to 38	28 to 38	28 to 38	28 to 38	28 to 38	28 to 38	28 to 38	28 to 38	28 to 38	28 to 38	28 to 38	28 to 38	5 to 20	5 to 20	5 to 20
Sample Date:			4/22/11	4/16/12	4/23/13	5/1/14	4/2/15	4/28/16	4/18/17	4/3/18	4/16/19	8/22/07	10/12/07	1/17/08	4/16/08	7/15/08	10/22/08	1/13/09	4/14/09	7/15/09	10/15/09	1/13/10	4/22/11	4/16/12	4/23/13	5/1/14	4/3/15	4/28/16	4/18/17	4/4/18	4/16/19	8/22/07	10/12/07	1/15/08
Collected By:			GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
Analyte	**Method**	**Units**																															
Volatile Organic Compounds (VOCs)																																	
Acetone	8260	µg/l	< 5.0	< 5.0 K-	< 10	< 10	< 10	< 10	<10	<10	<10	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 K-	< 10	< 10	< 10	< 10	<10	<10	<10	< 5.0	< 5.0 J+	< 5.0
Benzene			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.50	<0.50	<0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.50	<0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<10	<10	<10	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<10	<10	<10	< 5.0	< 5.0 J+	< 5.0
Carbon disulfide			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	<2.0	<2.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	<2.0	<2.0	0.56 J J+	< 5.0	< 5.0
Carbon tetrachloride			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0
Chloroethane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	< 2.0	< 2.0	< 2.0
Chloroform			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	1.9 J+	< 1.0	< 1.0
Chloromethane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	12.0 J+	< 2.0	< 2.0	< 2.0 J+	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	0.85 J	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	10.3 J+	< 2.0	< 2.0
1,4-Dichlorobenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane			9.4	6.4	5.9	5.6	5.9	4.4	4.9	4.0	1.8	23.0 J+	26.0	23.2	30.8	29.5	21.8	21.4	20.9	18.4	31.1 J+	25.1	23.1	17.0	15.8	16.2	16.2	11.6	11.4	12.8	3.1	1.1 J+	4.3	< 1.0
1,2-Dichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene			7.0	4.4	4.2	4.1	4.5	3.4	3.7	2.4	<1.0	15.6 J+	18.9	14.3	17.8	22.0	18.4	16.7	16.9	14.1	24.7 J+	19.4	23.8	15.5	14.8	16.7	16.8	8.2	9.7	14.1	1.3	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethylene			< 1.0	0.95 J	0.80 J	< 1.0	0.70 J	0.65 J	0.82 J	<1.0	<1.0	0.70 J J+	< 1.0	1.7	1.9	1.9	1.6	0.70 J	1.6	1.5	1.8 J+	1.7	2.4	1.4	1.1	< 1.0	0.95 J	0.64 J	0.81 J	<1.0	<1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	< 2.0	< 2.0	< 2.0
1,4-Dioxane			< 25	< 25	< 50	< 25	< 25	< 25	<130	<130	<130	< 25	< 25	< 25 J+	< 25	< 25	< 25	< 25 J+	< 25 J+	< 25	< 25	< 25	< 25	< 25	< 50	< 25	< 25	< 25	<130	<130	<130	< 25	< 25	< 25
Ethylbenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0
2-Hexanone			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	< 5.0	< 5.0 J+	< 5.0
4-Isopropyltoluene			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	<2.0	<2.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	<2.0	<2.0	< 5.0	< 5.0	< 5.0
Methyl tert-butyl ether			< 1.0	< 1.0	9.1 K-	1.5	0.98 J	< 1.0	0.55 J	<1.0	<1.0	6.8 J+	3.9	3.2	4.2	3.8	6.6	2.8	2.4	2.0	7.5	2.2	2.2	1.4	7.1 K-	0.78 J	1.1	< 1.0	1.1	<1.0	<1.0	< 1.0	< 1.0	< 1.0
Methylene chloride			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0	< 2.0	< 2.0	< 2.0
Naphthalene			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	< 5.0	< 5.0	< 5.0	0.68 J	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	< 5.0	< 5.0	< 5.0
Tert-amyl methyl ether			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J+	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0	< 2.0	< 2.0	< 2.0
1,1,1,2-Tetrachloroethane			< 5.0	< 5.0	< 5.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethylene (PCE)			74.6	75.1	68.5	56.4	54.5	55.7	50.6	33.0	2.6	93.5 J+	120	113	131	103	118	84.2	114	99.3	95.0	95.9	75.0	78.5	72.0	66.4	52.9	40.4	35.2	49.9	7.7	< 1.0	< 1.0	0.97 J
Tetrahydrofuran			< 10	< 10	< 10	< 10	< 10	< 10	<10	<10	<10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10 J+	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	<10	<10	<10	< 10	< 10	< 10
Toluene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane (TCA)			< 1.0	< 1.0	< 1.0	< 1.0	1.1	< 1.0	0.25 J	<1.0	<1.0	10.3 J+	4.3	3.2	< 1.0	3.9	6.4	2.8	3.7	2.5	3.3	3.5	4.3	2.0	2.6	1.7	2.1	1.1	0.45 J	1.1	<1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene (TCE)			23.2	21.0	21.3	16.8	20.2	18.3	17.6	12.8	2.5	32.6 J+	40.1	34.7	43.4	38.7	33.2	30.4	33.8	32.0	33.1	34.8	28.3	26.1	23.6	22.1	21.4	15.7	13.8	18.6	3.4	< 1.0	< 1.0	0.39 J
Vinyl chloride			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	0.38 J	0.35 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.43 J	< 1.0	< 1.0	1.6	< 1.0	< 1.0	< 1.0	0.89 J	< 1.0	<1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0
m,p-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0
o-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0
Total Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0
Metals (Total)	6010B	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Arsenic																																	
Iron																																	
Manganese																																	
Metals (Dissolved)	6010C	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Iron																																	
Others			NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methane	8015	µg/l																															
Ethane	8015	µg/l																															
Ethylene	8015	µg/l																															
Alkalinity	E310.1	µg/l																															
Chloride	E325.3	µg/l																															
Chlorine, Total Residual	E330.4	µg/l																															
Iron, Ferrous	3500FE B	µg/l																															
Nitrate & Nitrite as N	E353.2	µg/l																															
Nitrogen, Nitrate	E353.2	µg/l																															
Nitrogen, Nitrite	E354.1	µg/l																															
Sodium	6010C	µg/l																															
Sulfate	E375.4	µg/l																															
Sulfide	E376.1	µg/l																															
Surfactants	E425.1	µg/l																															
Total Organic Carbon	E415.1	µg/l																															

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "< " = The analyte was not detected at a concentration above the specified reporting limit.
5. SHA = Sanborn Head & Associates.
6. FD = Field Duplicate Sample.
7. NT = Not Tested.

Qualifying Notes:
B The analyte found in associated method blank.
C+ The result has a high bias due to surrogate recovery above upper control limits.
E The value exceeds the calibration range.
F+ The result has a high bias due to matrix spike recovery above upper control limits.
F- The result has a low bias due to matrix spike recovery below lower control limits.
G The result is estimated due to duplicate precision outside control limits.
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.
K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.
R The result is rejected due to gross exceedence of minimum response factor criteria.

Table 4-2. Chemical Testing Results - GEI Groundwater Sampling
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sample Location:			MW120S (cont.)																	MW121D												
Sample Name:			MW1120S	MW120S	MW120S	MW120S	MW120S	MW120S	MW120S	MW120S	MW120S	MW120S	MW120S	MW120S	MW120S	MW120S	MW120S	MW120S	MW120S	MW121D	MW121D	MW121D	MW121D	MW901	MW121D	MW900 (FD)	MW121D	MW901 (FD)	MW121D	MW900 (FD)	MW121D	MW900 (FD)
Well Screen Interval (ft bgs):			5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1
Sample Date:			4/16/08	7/15/08	10/22/08	1/13/09	4/14/09	7/15/09	10/15/09	4/13/10	4/22/11	4/16/12	4/23/13	5/1/14	4/3/15	4/28/16	4/18/17	4/4/18	4/16/19	10/22/07	1/15/08	4/17/08	7/14/08	7/14/08	10/22/08	10/22/08	1/12/09	1/12/09	4/13/09	4/13/09	7/14/09	7/14/09
Collected By:			GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
Analyte	**Method**	**Units**																														
Volatile Organic Compounds (VOCs)																																
Acetone	8260	µg/l	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	4.2 J K-	< 10	< 10	< 10	9.3 J	<10	<10	<10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 F+	< 5.0
Benzene			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.50	<0.50	<0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<10	<10	<10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon disulfide			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	<2.0	<2.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon tetrachloride			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloroform			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane			< 2.0 J+	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J+	< 2.0 J+	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,4-Dichlorobenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane			< 1.0	2.5	< 1.0	< 1.0	< 1.0	0.36 J	< 1.0	< 1.0	< 1.0	0.52 J	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	46.3	55.3	46.6	37.2	38.1	36.1	34.2	38.2	38.3	37.2	38.1	37.6	37.9
1,2-Dichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	13.2	< 1.0	16.7	12.8	12.6	12.9 G	8.4 G	14.0	14.2	14.1	14.2	11.0	10.4
cis-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	3.9	11.8	6.4	21.8	22.6	83.7 G	41.2 G	134	138	80.0	78.4	105	106
trans-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	0.70 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.1	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,4-Dioxane			< 25	< 25	< 25	< 25 J+	< 25 J+	< 25	< 25	< 25	< 25	< 25	< 50	< 25	< 25	< 25	<130	<130	<130	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
Ethylbenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Hexanone			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Isopropyltoluene			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	<2.0	<2.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methyl tert-butyl ether			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 K-	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	3.0	3.8	2.4	2.1	2.0	5.6	5.6	1.8	1.8	1.7	1.9	1.4	1.4
Methylene chloride			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Naphthalene			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tert-amyl methyl ether			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J+	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,1,1,2-Tetrachloroethane			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tetrachloroethylene (PCE)			< 1.0	< 1.0	0.71 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	182	258	177	157	154	148 G	97.7 G	112	114	121	118	140	139
Tetrahydrofuran			< 10	< 10	< 10	< 10	< 10 J+	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	<10	<10	<10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10 F+	< 10
Toluene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	0.51 J	1.6	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane (TCA)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	1.2	1.3	1.2	1.1	1.0	4.9	4.6	0.87 J	0.86 J	1.0	< 1.0	0.95 J	1.0
1,1,2-Trichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene (TCE)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	59.6	136	68.8	71.0	72.0	48.3 G	69.0 G	36.5	36.3	62.3	70.7	76.3	76.5
Vinyl chloride			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	0.39 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.32 J	0.31 J	< 1.0	< 1.0	0.56 J	0.52 J
m,p-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Metals (Total)	6010B	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Arsenic																																
Iron																																
Manganese																																
Metals (Dissolved)	6010C	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Iron																																
Others			NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methane	8015	µg/l																														
Ethane	8015	µg/l																														
Ethylene	8015	µg/l																														
Alkalinity	E310.1	µg/l																														
Chloride	E325.3	µg/l																														
Chlorine, Total Residual	E330.4	µg/l																														
Iron, Ferrous	3500FE B	µg/l																														
Nitrate & Nitrite as N	E353.2	µg/l																														
Nitrogen, Nitrate	E353.2	µg/l																														
Nitrogen, Nitrite	E354.1	µg/l																														
Sodium	6010C	µg/l																														
Sulfate	E375.4	µg/l																														
Sulfide	E376.1	µg/l																														
Surfactants	E425.1	µg/l																														
Total Organic Carbon	E415.1	µg/l																														

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "< " = The analyte was not detected at a concentration above the specified reporting limit.
5. SHA = Sanborn Head & Associates.
6. FD = Field Duplicate Sample.
7. NT = Not Tested.

Qualifying Notes:
B The analyte found in associated method blank.
C+ The result has a high bias due to surrogate recovery above upper control limits.
E The value exceeds the calibration range.
F+ The result has a high bias due to matrix spike recovery above upper control limits.
F- The result has a low bias due to matrix spike recovery below lower control limits.
G The result is estimated due to duplicate precision outside control limits.
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.
K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.
R The result is rejected due to gross exceedence of minimum response factor criteria.

Table 4-2. Chemical Testing Results - GEI Groundwater Sampling
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sample Location:			MW121D (cont.)																			MW121S													
Sample Name:			MW121D	MW121D	MW121D	MW121D	MW121D	MW121D	MW121D	MW121D	MW121D	MW121D	MW121D	MW121D	MW121D	MW121D	MW121D	MW121D	MW121D	MW121D	MW121D	MW121S	MW121S	MW121S	MW121S	MW121S	MW121S	MW121S	MW121S	MW121S	MW121S	MW121S	MW121S	MW121S
Well Screen Interval (ft bgs):			32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	32.1 to 47.1	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20
Sample Date:			10/14/09	4/12/10	4/20/11	4/16/12	11/12/12	4/23/13	11/18/13	4/30/14	11/18/14	4/2/15	11/19/15	4/28/16	11/21/16	4/17/17	11/8/17	4/3/18	11/15/18	4/15/19	11/22/19	10/22/07	1/15/08	4/17/08	7/14/08	10/22/08	1/12/09	4/13/09	7/14/09	10/14/09	4/12/10	4/20/11	4/16/12	4/23/13
Collected By:			GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
Analyte	**Method**	**Units**																																	
Volatile Organic Compounds (VOCs)																																			
Acetone	8260	µg/l	< 5.0	< 5.0 J+	< 5.0	< 5.0 K-	< 5.0 K-	< 10	< 10 K-	< 10	< 10	< 10	< 10	8.7 J	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 F+	< 5.0	< 5.0 J+	< 5.0	8.2 K-	< 10
Benzene			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.5
Bromodichloromethane			< 1.0	< 1.0	< 1.0	3.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 K-	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon disulfide			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	13.4
Carbon tetrachloride			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 G	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloroform			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 G	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,4-Dichlorobenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane			54.8	52.9	65.8	67.7	49.9	63.4	32.1	45.0	149.0	55.7	35.9	40.2	109.0	32.0	47.6	14.8	14.0	18.8	18.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene			21.8	18.0	24.1	25.5	17.6	22.3	12.7	17.6	59.7 K+	23.5	14.5	14.9	35.9	14.8	15.3	7.6	7.0	7.7	8.7	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethylene			253	279	217	178	122	193	67.2	133	316	186	73.6	108	271	79.9	119	24.8	44.3	73.5	85.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethylene			< 1.0	< 1.0	5.8	< 1.0	< 1.0	2.9	< 1.0	1.5	0.57 J K+	<1.0	<1.0	<1.0	1.1	0.37 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,4-Dioxane			< 25	< 25	< 25	< 25	< 25	< 50	< 50	< 25 K-	< 25 K-	<25	<25	<25	< 50	< 130	< 130	< 130	< 130	< 130	< 130	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 50
Ethylbenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Hexanone			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 K-	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Isopropyltoluene			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 2.0	< 1.0	<2.0	<2.0	<2.0	<2.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methyl tert-butyl ether			< 1.0	0.94 J	2.0	1.7	2.1	8.6 K-	2.7	2.3	7.1 K+	2.1	1.6	0.72 J	1.7	1.4	1.4	<1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 K-
Methylene chloride			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0	<2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Naphthalene			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	5.2	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tert-amyl methyl ether			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,1,1,2-Tetrachloroethane			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tetrachloroethylene (PCE)			115	119	219	356	223	276	124	163	224	216	216	227	139	160	242	78	47.5	48.2	64.8	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrahydrofuran			< 10	< 10	< 10	< 10	< 10 F- K-	< 10	< 10	< 10 G	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10 F+	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Toluene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane (TCA)			< 1.0	0.62 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.53 J	0.44 J	1.4	0.56 J	1.1	< 1.0	0.45 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene (TCE)			146.0	96.3	233.0	342	207	342	115	236	432	266	148	262	176	159	310	39.7	23.5	31.1	40.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride			< 1.0	< 1.0	7.4	15.2	8.5	10.2	3.4	9.5	38.4 G K-	15	7.5	18.2	23.3	6.6	10.4	<1.0	6.1	9	4.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m,p-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Metals (Total)	6010B	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Arsenic																																			
Iron																																			
Manganese																																			
Metals (Dissolved)	6010C	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Iron																																			
Others			NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methane	8015	µg/l																																	
Ethane	8015	µg/l																																	
Ethylene	8015	µg/l																																	
Alkalinity	E310.1	µg/l																																	
Chloride	E325.3	µg/l																																	
Chlorine, Total Residual	E330.4	µg/l																																	
Iron, Ferrous	3500FE B	µg/l																																	
Nitrate & Nitrite as N	E353.2	µg/l																																	
Nitrogen, Nitrate	E353.2	µg/l																																	
Nitrogen, Nitrite	E354.1	µg/l																																	
Sodium	6010C	µg/l																																	
Sulfate	E375.4	µg/l																																	
Sulfide	E376.1	µg/l																																	
Surfactants	E425.1	µg/l																																	
Total Organic Carbon	E415.1	µg/l																																	

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "< " = The analyte was not detected at a concentration above the specified reporting limit.
5. SHA = Sanborn Head & Associates.
6. FD = Field Duplicate Sample.
7. NT = Not Tested.

Qualifying Notes:
B The analyte found in associated method blank.
C+ The result has a high bias due to surrogate recovery above upper control limits.
E The value exceeds the calibration range.
F+ The result has a high bias due to matrix spike recovery above upper control limits.
F- The result has a low bias due to matrix spike recovery below lower control limits.
G The result is estimated due to duplicate precision outside control limits.
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.
K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.
R The result is rejected due to gross exceedence of minimum response factor criteria.

Table 4-2. Chemical Testing Results - GEI Groundwater Sampling
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sample Location:			MW121S (cont.)						MW122																						
Sample Name:			MW121S	MW121S	MW121S	MW121S	MW121S	MW121S	MW122	MW122	MW122	MW122	MW122	MW122	MW122	MW122	MW122	MW122	MW122	MW122	MW122	MW122	MW122	MW122	MW122	MW122	MW122	MW122	MW122	MW122	MW122
Well Screen Interval (ft bgs):			5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	4 to 16	4 to 16	4 to 16	4 to 16	4 to 16	4 to 16	4 to 16	4 to 16	4 to 16	4 to 16	4 to 16	4 to 16	4 to 16	4 to 16	4 to 16	4 to 16	4 to 16	4 to 16	4 to 16	4 to 16	4 to 16	4 to 16	4 to 16	4 to 16
Sample Date:			4/30/14	4/2/15	4/28/16	4/17/17	4/3/18	4/15/19	1/30/08	4/17/08	7/14/08	10/22/08	1/12/09	4/13/09	7/15/09	10/14/09	4/12/10	10/27/10	4/20/11	11/16/11	4/17/12	11/12/12	4/23/13	11/18/13	4/30/14	11/18/14	4/2/15	11/19/15	4/28/16	11/21/16	4/17/2017
Collected By:			GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
Analyte	**Method**	**Units**																													
Volatile Organic Compounds (VOCs)																															
Acetone	8260	µg/l	< 10	< 10	< 10	<10	<10	<10	< 5.0 J+	9.6 J	11.1	7.2	5.7	< 5.0	< 5.0 F-	< 10	3.8 J+	< 5.0	17.8	< 5.0	< 5.0	< 25 K-	< 50	< 50 K-	< 20	< 20	< 20	< 10	9.4 J	< 40	< 50
Benzene			< 0.5	< 0.5	< 0.5	<0.50	<0.50	<0.50	< 0.50	< 1.0	0.46 J	< 0.50	< 0.50	< 0.50	0.23 J	< 1.0	< 0.50	< 0.50	< 1.0	< 0.50	< 0.50	< 2.5	< 2.5	< 2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 0.50	< 2.0	< 2.5
Bromodichloromethane			< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	1.1 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 5.0	< 5.0	< 5.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	< 4.0	< 5.0
2-Butanone (MEK)			< 5.0	< 5.0	< 5.0	<10	<10	<10	< 5.0 J+	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 25 K-	< 25	< 25	< 10	< 10	< 10	17.3 J	< 10	< 40	< 50
Carbon disulfide			< 5.0	< 5.0	< 5.0	<2.0	<2.0	<2.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 F-	< 10	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 25	< 25	< 25	< 10	< 10	< 10	< 10	< 5.0	< 20	< 10
Carbon tetrachloride			< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 5.0	< 5.0	< 5.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	< 4.0	< 5.0
Chlorobenzene			< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 5.0	< 5.0	< 5.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	< 4.0	< 5.0
Chloroethane			< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	< 2.0	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 F-	< 4.0	< 2.0	< 2.0	< 4.0	< 2.0	< 2.0	< 10	< 10	< 10	< 4.0	< 4.0 G	< 4.0	< 4.0	< 2.0	< 8.0	< 5.0
Chloroform			< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 2.0	< 1.0	0.61 J	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 5.0	< 5.0	< 5.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	< 4.0	< 5.0
Chloromethane			< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0	< 2.0	< 4.0	< 2.0	< 2.0 J+	< 2.0	< 2.0	< 2.0 F-	< 4.0	< 2.0	< 2.0	< 4.0	< 2.0	< 2.0	< 10	< 10	< 10	< 4.0	< 4.0 G	< 4.0	< 4.0	< 2.0	< 8.0	< 5.0
1,4-Dichlorobenzene			< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 5.0	< 5.0	< 5.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 5.0
1,1-Dichloroethane			< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	19.3	30.4 C+	10.1	15.0	16.0	25.8	21.2	20.8	29.6	20.3	19.1	15.2	17.2	14.4	11.1	12.7	15.9	12.8	15.0	6.8	18.3	20.5	30.9
1,2-Dichloroethane			< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 5.0	< 5.0	< 5.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	< 4.0	< 5.0
1,1-Dichloroethylene			< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	4.0	9.0 C+	1.4	4.4	3.4	6.1	5.3 F-	6.6	7.3	4.6	8.3	4.1	6.4	4.7 J	4.1 J	4.4 J	5.1	3.8 K+	4.5	1.6 J	5.8	5.6	7.7
cis-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	60.6	70.7 C+	34.0	62.5	91.5	61.9	39.4	109.0	58.6	117	45.5	66.4	61.5	84.7	56.2	67.2	68.0	69.3	43.8	75.7	61.3	68.5	67.2
trans-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	0.87 J	< 2.0	< 1.0	< 1.0	< 1.0	0.93 J	< 1.0	< 2.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 5.0	< 5.0	< 5.0	< 2.0	< 2.0 K+	< 2.0	< 2.0	< 1.0	< 4.0	< 5.0
1,2-Dichloropropane			< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	< 2.0	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	< 2.0	< 4.0	< 2.0	< 2.0	< 10	< 10	< 10	< 4.0	< 4.0	< 4.0	< 4.0	< 2.0	< 8.0	< 5.0
1,4-Dioxane			< 25 K-	< 25	< 25	<130	<130	<130	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 50	< 25	< 25	< 50	< 25	< 25 K-	< 130	< 260	< 260	< 50 K-	< 50 K-	< 50	< 50	< 50	< 200	< 630
Ethylbenzene			< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 5.0	< 5.0	< 5.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	< 4.0	< 5.0
2-Hexanone			< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	< 5.0 J+	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 25	< 25	< 25 K-	< 10	< 10	< 10	< 10	< 10	< 40	< 25
4-Isopropyltoluene			< 5.0	< 5.0	< 5.0	<2.0	<2.0	<2.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 25	< 25	< 25	< 10	< 10	< 10	< 10	< 10	< 20	< 10
Methyl tert-butyl ether			< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	3.3	3.9 C+	1.9	5.6	2.5	3.2	3.3	2.9	2.3	2.7	2.9	2.1	2.7	2.2 J	< 5.0 K-	< 5.0	1.5 J	2.6 K+	1.8	1.0 J	1.2	< 4.0	3.7
Methylene chloride			< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0	< 2.0	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	< 2.0	< 4.0	< 2.0	< 2.0	< 10	< 10	< 10	< 4.0	< 4.0	< 4.0	1.1 J	< 2.0	39.4	< 10
Naphthalene			< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	< 5.0	< 10	2.6 J	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 25	< 25	< 25	< 10	< 10	< 10	< 10	< 5.0	< 20	< 25
Tert-amyl methyl ether			< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0	< 2.0	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	< 2.0	< 4.0	< 2.0	< 2.0	< 10	< 10	< 10	< 4.0	< 4.0	< 4.0	< 4.0	< 2.0	< 8.0	< 10
1,1,1,2-Tetrachloroethane			< 5.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 25	< 25	< 25	< 10	< 10	<2.0	<2.0	< 1.0	< 4.0	< 5.0
Tetrachloroethylene (PCE)			< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	477	691 C+	122	352 G	312	499 G	677	518	856	532	656	581	1000	811	938	726	592	499	784	326	734	684	910
Tetrahydrofuran			< 10 G	< 10	< 10	<10	<10	<10	< 10	< 20	< 10	< 10	< 10	< 10	< 10	< 20	< 10	< 10	< 20	< 10	< 10	< 50 F-	K-	< 50	< 50	< 20 G	< 20	< 20	< 20	< 10	< 40	< 50
Toluene			6.5	<1.0	<1.0	<1.0	<1.0	<1.0	0.48 J	< 2.0	2.8	3.7	0.64 J	2.4	1.6	< 4.0	6.0	< 1.0	< 2.0	< 1.0	< 1.0	< 5.0	< 5.0	6	< 2.0	0.79 J	0.72	< 2.0	< 1.0	< 4.0	< 5.0
1,1,1-Trichloroethane (TCA)			< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	1.4	3.4 C+	0.63 J	5.1	1.1	1.7	1.7	< 2.0	1.5	< 1.0	7.5	1.4	2.2	< 5.0	< 5.0	< 5.0	< 2.0	< 2.0	2.0	< 2.0	0.92 J	< 4.0	< 5.0
1,1,2-Trichloroethane			< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 5.0	< 5.0	< 5.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	< 4.0	< 5.0
Trichloroethylene (TCE)			< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	177	106 C+	27.0	56.9	59.6	91.7	90.2	81.1	119.0	82.1	73.1	79.0	103	88.0	93.4	76.0	98.9	58.9	82.9	44.9	98.3	87.1	102.0
Vinyl chloride			< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	0.32 J	< 2.0	< 1.0	< 1.0	1.2	< 1.0	< 1.0 F-	4.3	< 1.0	3.6	< 2.0	< 1.0	< 1.0	< 5.0	< 5.0	< 5.0	< 2.0	< 2.0 K-	1.8	1.2	0.73 J	< 4.0	< 5.0
m,p-Xylene			< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 2.0	0.92 J	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 5.0	< 5.0	< 5.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	< 4.0	< 5.0
o-Xylene			< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 2.0	0.67 J	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 5.0	< 5.0	< 5.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	< 4.0	< 5.0
Total Xylene			< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 2.0	1.6 J	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 5.0	< 5.0	< 5.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	< 4.0	< 5.0
Metals (Total)	6010B	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Arsenic																															
Iron																															
Manganese																															
Metals (Dissolved)	6010C	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Iron																															
Others			NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methane	8015	µg/l																													
Ethane	8015	µg/l																													
Ethylene	8015	µg/l																													
Alkalinity	E310.1	µg/l																													
Chloride	E325.3	µg/l																													
Chlorine, Total Residual	E330.4	µg/l																													
Iron, Ferrous	3500FE B	µg/l																													
Nitrate & Nitrite as N	E353.2	µg/l																													
Nitrogen, Nitrate	E353.2	µg/l																													
Nitrogen, Nitrite	E354.1	µg/l																													
Sodium	6010C	µg/l																													
Sulfate	E375.4	µg/l																													
Sulfide	E376.1	µg/l																													
Surfactants	E425.1	µg/l																													
Total Organic Carbon	E415.1	µg/l																													

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "< " = The analyte was not detected at a concentration above the specified reporting limit.
5. SHA = Sanborn Head & Associates.
6. FD = Field Duplicate Sample.
7. NT = Not Tested.

Qualifying Notes:
B The analyte found in associated method blank.
C+ The result has a high bias due to surrogate recovery above upper control limits.
E The value exceeds the calibration range.
F+ The result has a high bias due to matrix spike recovery above upper control limits.
F- The result has a low bias due to matrix spike recovery below lower control limits.
G The result is estimated due to duplicate precision outside control limits.
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.
K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.
R The result is rejected due to gross exceedence of minimum response factor criteria.

Table 4-2. Chemical Testing Results - GEI Groundwater Sampling
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sample Location:			MW122 (cont.)					MW201				MW202																			MW203		MW-3	
Sample Name:			MW122	MW122	MW122	MW122	MW122	MW201	MW201	MW201	MW201	MW202	MW202	MW202	MW202	MW202	MW202	MW202	MW202	MW202	MW202	MW202	MW202	MW202	MW202	MW202	MW202	MW202	MW202	MW202	MW203	MW203	MW-3	MW-3
Well Screen Interval (ft bgs):			4 to 16	4 to 16	4 to 16	4 to 16	4 to 16	11 to 21	11 to 21	11 to 21	11 to 21	10.5 to 20.5	10.5 to 20.5	10.5 to 20.5	10.5 to 20.5	10.5 to 20.5	10.5 to 20.5	10.5 to 20.5	10.5 to 20.5	10.5 to 20.5	10.5 to 20.5	10.5 to 20.5	10.5 to 20.5	10.5 to 20.5	10.5 to 20.5	10.5 to 20.5	10.5 to 20.5	10.5 to 20.5	10.5 to 20.5	10.5 to 20.5	6 to 18	6 to 18	Unknown	Unknown
Sample Date:			11/8/2017	4/3/2018	11/15/2018	4/16/2019	11/22/2019	7/19/07	10/12/07	1/11/08	4/15/08	7/19/07	10/12/07	1/11/08	4/15/08	7/15/08	10/21/08	1/13/09	4/15/09	7/14/09	10/14/09	4/12/10	4/22/11	4/17/12	4/23/13	5/1/14	4/2/15	4/29/16	4/17/17	4/4/18	4/16/19	7/19/07	4/15/08	7/1/02	8/9/04
Collected By:			GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	SHA	GeoInsight
Analyte	**Method**	**Units**																															
Volatile Organic Compounds (VOCs)																																	
Acetone	8260	µg/l	< 10	<50	<50	<20	<50	NT	< 5.0 J+	< 5.0	< 5.0	NT	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 10	< 10	< 10	9.7	<10	<10	<10	NT	< 250	< 2500	< 2000
Benzene			< 0.50	<2.5	<2.5	<1.0	<2.5	NT	< 0.50	< 0.50	< 0.50	NT	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 J+	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.50	<0.50	<0.50	NT	< 25	< 250	< 100
Bromodichloromethane			< 1.0	<5.0	<5.0	<2.0	<5.0	NT	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	< 50	< 250	< 100
2-Butanone (MEK)			< 10	<50	<50	<20	<50	NT	< 5.0 J+	< 5.0	< 5.0	NT	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<10	<10	<10	NT	< 250	< 2500	< 1000
Carbon disulfide			< 2.0	<10	<10	<4.0	<10	NT	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	<2.0	<2.0	NT	< 250	< 2500	< 5.0
Carbon tetrachloride			< 1.0	<5.0	<5.0	<2.0	<5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 50	< 250	< 100
Chlorobenzene			< 1.0	<5.0	<5.0	<2.0	<5.0	NT	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	< 50	< 250	< 100
Chloroethane			< 1.0	<5.0	<5.0	<2.0	<5.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	< 2.0	< 100	< 5.0	< 200
Chloroform			< 1.0	<5.0	<5.0	<2.0	<5.0	NT	0.47 J	0.40 J	0.24 J	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.89 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	< 50	< 380	< 100
Chloromethane			< 1.0	<5.0	<5.0	<2.0	<5.0	NT	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	NT	< 100	< 1200	< 200
1,4-Dichlorobenzene			< 1.0	<5.0	<5.0	<2.0	<5.0	NT	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	< 50	< 1200	< 100
1,1-Dichloroethane			14.8	22.7	17.0	18.8	16.4	< 1.0	0.66 J	< 1.0	0.23 J	0.50 J	< 1.0	< 1.0	< 1.0	0.46 J	< 1.0	< 1.0	0.34 J	< 1.0	< 1.0	3.1	5.0	1.1	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	22.2	13.0 J	< 380	< 100
1,2-Dichloroethane			< 1.0	<5.0	<5.0	<2.0	<5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 50	< 250	< 100
1,1-Dichloroethylene			3.9	8.1	7.3	6.1	6.9	4.7	4.9	5.2	3.0	1.1	< 1.0	< 1.0	< 1.0	2.9	2.8	1.6	1.9	3.2	< 1.0	< 1.0	< 1.0	15.5	< 1.0	2.4	0.93 J	0.92 J	< 1.0	< 1.0	0.46 J	1.1	1.5	76.4	36.6 J	< 250	< 100
cis-1,2-Dichloroethylene			50	64.4	71.0	69.1	95.8	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	102	78.9	< 250	< 100
trans-1,2-Dichloroethylene			< 1.0	<5.0	<5.0	<2.0	<5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	1.2	< 50	< 380	< 100
1,2-Dichloropropane			< 1.0	<5.0	<5.0	<2.0	<5.0	NT	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J+	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<1.0	<1.0	<1.0	NT	< 100	< 880	< 100
1,4-Dioxane			< 130	<630	<630	<250	<630	NT	< 25	< 25	< 25	NT	< 25	< 25	< 25	< 25	< 25	< 25 J+	< 25 J+	< 25	< 25	< 25	< 25	< 25 K-	< 50	< 50	<25	<25	<130	<130	<130	NT	< 1300	NT	NT
Ethylbenzene			< 1.0	<5.0	<5.0	<2.0	<5.0	NT	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	< 50	< 250	< 100
2-Hexanone			< 5.0	<25	<25	<2.0	<25	NT	< 5.0 J+	< 5.0	< 5.0	NT	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	NT	< 250	< 2500	< 1000
4-Isopropyltoluene			< 2.0	<10	<10	<4.0	<10	NT	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	11.3	< 5.0	< 5.0	< 5.0	< 5.0	<2.0	<2.0	<2.0	NT	< 250	< 250	< 100
Methyl tert-butyl ether			1.1	<5.0	<5.0	2.1	<5.0	NT	75.8	240	0.26 J	NT	< 1.0	< 1.0	1.2	< 1.0	< 1.0	0.92 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 K-	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	1.0	NT	< 50	< 5.0	< 100
Methylene chloride			< 2.0	<10	<10	<4.0	<10	NT	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0	NT	< 100	< 2500	< 1000
Naphthalene			< 5.0	<25	<25	<10	<25	NT	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	NT	< 250	< 1200	< 100
Tert-amyl methyl ether			< 2.0	<10	<10	<4.0	<10	NT	4.6	17.7	< 2.0	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0	NT	< 100	NT	NT
1,1,1,2-Tetrachloroethane			< 1.0	<5.0	<5.0	<2.0	<5.0	NT	< 5.0	< 5.0	< 5.0	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<1.0	<1.0	<1.0	<1.0	<1.0	NT	< 250	< 250	< 100
Tetrachloroethylene (PCE)			579	959	1150	1060	961	5.1	19.6	25.8	18.0	17.2	14.6	21.8	55.6	48.5	39.4	37.5	53.5	52.6	61.8	84.9	86.5	20.6	37.0	31.4	28.1	40.8	20.0	39.4	68.9	15500	11500	16000	16200
Tetrahydrofuran			< 10	<50	<50	<2.0	<50	NT	< 10	< 10	< 10	NT	< 10	< 10	< 10	< 10	< 10	< 10	< 10 J+	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	<10	<10	<10	NT	< 50	NT	NT
Toluene			20.7	<5.0	<5.0	<2.0	<5.0	NT	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	< 50	< 380	< 100
1,1,1-Trichloroethane (TCA)			< 1.0	<5.0	<5.0	<2.0	<5.0	9.8	36.3	32.9	7.3	12.5	4.4	4.2	35.2	18.9	7.1	8.0	15.7	6.6	14.3 J+	16.8	18.6	2.8	5.2	6.9	7.4	7.1	3.5	8.1	9.8	1710	988	< 250	< 100
1,1,2-Trichloroethane			< 1.0	<5.0	<5.0	<2.0	<5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	0.66 J	< 50	< 380	< 100
Trichloroethylene (TCE)			63.3	110.0	122	121	131	4.5	7.2	8.2	6.4	2.2	1.5	1.6	6.9	8.6	5.3	5.6	11.8 J+	7.2	9.8	12.9	8.2	1.5	2.5	1.5	1.4	1.5	0.81 J	1.5	2.2	979	618	< 250	< 100
Vinyl chloride			1.3	<5.0	<5.0	<2.0	<5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 50	< 5.0	< 100
m,p-Xylene			< 1.0	<5.0	<5.0	<2.0	<5.0	NT	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	< 50	< 250	< 200
o-Xylene			< 1.0	<5.0	<5.0	<2.0	<5.0	NT	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	< 50	< 250	< 100
Total Xylene			< 1.0	<5.0	<5.0	<2.0	<5.0	NT	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	NT	< 50	ND	ND
Metals (Total)	6010B	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Arsenic																																			
Iron																																			
Manganese																																			
Metals (Dissolved)	6010C	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Iron																																			
Others			NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methane	8015	µg/l																																	
Ethane	8015	µg/l																																	
Ethylene	8015	µg/l																																	
Alkalinity	E310.1	µg/l																																	
Chloride	E325.3	µg/l																																	
Chlorine, Total Residual	E330.4	µg/l																																	
Iron, Ferrous	3500FE B	µg/l																																	
Nitrate & Nitrite as N	E353.2	µg/l																																	
Nitrogen, Nitrate	E353.2	µg/l																																	
Nitrogen, Nitrite	E354.1	µg/l																																	
Sodium	6010C	µg/l																																	
Sulfate	E375.4	µg/l																																	
Sulfide	E376.1	µg/l																																	
Surfactants	E425.1	µg/l																																	
Total Organic Carbon	E415.1	µg/l																																	

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "< " = The analyte was not detected at a concentration above the specified reporting limit.
5. SHA = Sanborn Head & Associates.
6. FD = Field Duplicate Sample.
7. NT = Not Tested.

Qualifying Notes:
B The analyte found in associated method blank.
C+ The result has a high bias due to surrogate recovery above upper control limits.
E The value exceeds the calibration range.
F+ The result has a high bias due to matrix spike recovery above upper control limits.
F- The result has a low bias due to matrix spike recovery below lower control limits.
G The result is estimated due to duplicate precision outside control limits.
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.
K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.
R The result is rejected due to gross exceedence of minimum response factor criteria.

Table 4-2. Chemical Testing Results - GEI Groundwater Sampling
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sample Location:			MW-3 (cont.)										MW- CS1	SH-1	SH-3	SH-4	SH-MW1					SH-MW2									
Sample Name:			MW-3	MW-3	MW-3	MW-3	MW-3	MW-3	MW-3	MW-3	MW-3	MW-3	MW-CS1	SH-1	SH-3	SH-4	SH-MW1	SH-MW-1	SH-MW-1	SH-MW1	SHMW1	SH-MW2	SH-MW2	SH-MW-2	SH-MW-2	SH-MW2	SHMW2	SH-MW2	SH-MW2	SH-MW2	SH-MW2
Well Screen Interval (ft bgs):			Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	9 to 14	8 to 13	11 to 16	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	10 to 25	10 to 25	10 to 25	10 to 25	10 to 25	10 to 25	10 to 25	10 to 25	10 to 25	10 to 25
Sample Date:			5/23/06	1/17/07	4/17/07	4/15/08	7/15/08	10/21/08	1/14/09	4/14/09	7/15/09	10/16/09	5/23/07	8/9/04	8/9/04	5/25/06	7/8/02	5/23/06	10/4/06	1/16/07	4/12/07	7/8/02	8/16/04	5/23/06	10/4/06	1/16/07	4/16/07	7/19/07	4/28/17	4/4/18	4/16/19
Collected By:			GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GeoInsight	GeoInsight	GEI	SHA	GEI	GEI	GEI	GEI	SHA	GeoInsight	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
Analyte	**Method**	**Units**																													
Volatile Organic Compounds (VOCs)																															
Acetone	8260	µg/l	< 5.0	< 5.0	< 130	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 4000	< 2000	30.0	< 2500	< 5.0	< 5.0	< 5.0	< 5.0	< 250	< 2000	< 5.0	< 5.0	< 5.0	< 10	NT	<10	<10	<10
Benzene			0.37 J	0.71	< 13	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 200	< 100	< 0.50	< 250	< 0.50	0.61	< 0.50	0.33 J	< 25	< 100	< 0.50	< 0.50	< 0.50	< 1.0	NT	<0.50	<0.50	<0.50
Bromodichloromethane			< 1.0	< 1.0	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 200	< 100	< 1.0	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 100	< 1.0	< 1.0	< 1.0	< 2.0	NT	<1.0	<1.0	<1.0
2-Butanone (MEK)			< 5.0	< 5.0	< 130	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 2000	< 1000	< 5.0	< 2500	< 5.0	< 5.0	< 5.0	< 5.0	< 250	< 1000	< 5.0	< 5.0	< 5.0	< 10	NT	<10	<10	<10
Carbon disulfide			< 5.0	< 5.0	< 130	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	0.54 J	< 1000	< 5.0	< 5.0	< 2500	< 5.0	< 5.0	< 5.0	< 5.0	< 250	< 5.0	< 5.0	< 5.0	< 5.0	< 10	NT	<2.0	<2.0	<2.0
Carbon tetrachloride			< 1.0	< 1.0	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 200	< 100	< 1.0	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 100	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	<1.0	<1.0	<1.0
Chlorobenzene			< 1.0	0.52 J	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 200	< 100	< 1.0	< 250	< 1.0	0.52 J	< 1.0	< 1.0	< 25	< 100	< 1.0	< 1.0	< 1.0	< 2.0	NT	<1.0	<1.0	<1.0
Chloroethane			< 2.0	< 2.0	< 50	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 400	< 200	< 2.0	< 5.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 200	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	<1.0	<1.0	<1.0
Chloroform			2.1	3.4	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 200	< 100	13.3	< 380	2.1	4.6	1.7	3.4	< 38	< 100	< 1.0	< 1.0	< 1.0	< 2.0	NT	<1.0	<1.0	<1.0
Chloromethane			< 2.0	< 2.0	< 50	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 400	< 200	< 2.0	< 1200	< 2.0	< 2.0	< 2.0	< 2.0	< 120	< 200	< 2.0	< 2.0	< 2.0	< 4.0	NT	<1.0	<1.0	<1.0
1,4-Dichlorobenzene			< 1.0	< 1.0	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 200	< 100	< 1.0	< 1200	< 1.0	< 1.0	< 1.0	< 1.0	< 120	< 100	< 1.0	< 1.0	< 1.0	< 2.0	NT	<1.0	<1.0	<1.0
1,1-Dichloroethane			< 1.0	< 1.0	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 200	< 100	15.9	< 380	11.4	12.0	8.5	12.7	< 38	< 100	1.0	20.9	5.7	< 2.0	12.4	<1.0	<1.0	<1.0
1,2-Dichloroethane			< 1.0	< 1.0	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 200	< 100	103	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 100	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	<1.0	<1.0	<1.0
1,1-Dichloroethylene			6.9	5.6	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 200	< 100	556 E	< 250	11.7	19.3	9.0	24.4	< 25	< 100	10.1	45.0	9.8	2.1	23.8	0.65 J	<1.0	<1.0
cis-1,2-Dichloroethylene			< 1.0	1.9	< 25	< 1.0	0.56 J	< 1.0	< 1.0	< 1.0	0.43 J	2.3 J+	< 1.0	< 200	< 100	16.6	< 250	2.1	7.3	11.2	2.7	< 25	< 100	3.9	45.7	14.7	1.4 J	26.1	1.7	2.3	3.1
trans-1,2-Dichloroethylene			< 1.0	< 1.0	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 200	< 100	< 1.0	< 380	< 1.0	< 1.0	< 1.0	< 1.0	< 38	< 100	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane			< 2.0	< 2.0	< 50	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 200	< 100	< 2.0	< 880	< 2.0	< 2.0	< 2.0	< 2.0	< 88	< 100	< 2.0	< 2.0	< 2.0	< 4.0	NT	<1.0	<1.0	<1.0
1,4-Dioxane			< 25	< 25	< 630	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	NT	NT	57700	NT	< 25	< 25 R	< 25	< 25	NT	NT	< 25	< 25 R	< 25	< 5.0	NT	<130	<130	<130
Ethylbenzene			< 1.0	< 1.0	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 200	< 100	< 1.0	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 100	< 1.0	< 1.0	< 1.0	< 2.0	NT	<1.0	<1.0	<1.0
2-Hexanone			< 5.0	< 5.0	< 130	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 2000	< 1000	5.3	NT	< 5.0	< 5.0	< 5.0	< 5.0	NT	< 1000	< 5.0	< 5.0	< 5.0	< 10	NT	<5.0	<5.0	<5.0
4-Isopropyltoluene			< 5.0	< 5.0	< 130	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 200	< 100	< 5.0	< 250	< 5.0	< 5.0	< 5.0	< 5.0	< 25	< 100	< 5.0	< 5.0	< 5.0	< 10	NT	<2.0	<2.0	<2.0
Methyl tert-butyl ether			< 1.0	< 1.0	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	66.4	< 200	< 100	< 1.0	< 5.0	< 1.0	0.71 J J+	< 1.0	0.74 J J+	< 5.0	< 100	< 1.0	8.7 J+	1.4	< 2.0	NT	<1.0	<1.0	<1.0
Methylene chloride			< 2.0	< 2.0	71.5	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2000	< 1000	12.2	< 2500	< 2.0	< 2.0	< 2.0	< 2.0	< 250	< 1000	< 2.0	< 2.0	< 2.0	2.3 J	NT	<2.0	<2.0	<2.0
Naphthalene			< 5.0	< 5.0	< 130	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 200	< 5.0	< 5.0	< 1200	< 5.0	< 5.0	< 5.0	< 5.0	< 120	< 100	< 5.0	< 5.0	< 5.0	< 10	NT	<5.0	<5.0	<5.0
Tert-amyl methyl ether			< 2.0	< 2.0	< 50	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J+	< 2.0	NT	NT	1.9 J	NT	< 2.0	< 2.0	< 2.0	< 2.0	NT	NT	< 2.0	< 2.0	< 2.0	< 4.0	NT	<2.0	<2.0	<2.0
1,1,1,2-Tetrachloroethane			1.9 J	4.4 J	< 130	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 200	< 100	40.4	< 250	< 5.0	< 5.0	< 5.0 F+	< 5.0	< 25	< 100	< 5.0	< 5.0	< 5.0 F+	< 10	NT	<1.0	<1.0	<1.0
Tetrachloroethylene (PCE)			22100	51900	6550	400	427	606	176	141	280	391	< 1.0	49700	19500	7240	21000	16200	28300	31700 F+	48900	2000	7170	1730	7190	2880 F+	726	3320	365	459	439
Tetrahydrofuran			< 10	< 10	< 250	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	NT	NT	< 10	NT	< 10	< 10	< 10	< 10	NT	NT	< 10	< 10	< 10	< 20	NT	<10	<10	<10
Toluene			0.62 J	< 1.0	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 200	< 100	1.8	< 380	0.61 J	0.47 J	< 1.0	0.36 J	< 38	< 100	< 1.0	< 1.0	< 1.0	< 2.0	NT	<1.0	<1.0	<1.0
1,1,1-Trichloroethane (TCA)			39.1	68.7	11.1 J	< 1.0	0.43 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1150	2070	7610	< 250	34.5	69.7 J+	31.4	27.9 J+	660	1550	158	1330	360	44.1	539	6.8	7.9	14.8
1,1,2-Trichloroethane			< 1.0	< 1.0	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 200	< 100	172	< 380	< 1.0	< 1.0	< 1.0	< 1.0	< 38	< 100	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	<1.0	<1.0	<1.0
Trichloroethylene (TCE)			86.6	247	13.8 J	1.9	3.5	4.2	1.3	1.3	2.7	3.6	< 1.0	906	1440	7580	< 5.0	141	317	141	159	190	572	92.8	486	171	26.5	354	13.2	14.8	16.7
Vinyl chloride			< 1.0	< 1.0	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 200	< 100	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	0.55 J	< 5.0	< 100	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	<1.0	<1.0	<1.0
m,p-Xylene			< 1.0	< 1.0	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 400	< 200	< 1.0	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 200	< 1.0	< 1.0	< 1.0	< 2.0	NT	<1.0	<1.0	<1.0
o-Xylene			< 1.0	< 1.0	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 200	< 100	< 1.0	< 250	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 100	< 1.0	< 1.0	< 1.0	< 2.0	NT	<1.0	<1.0	<1.0
Total Xylene			< 1.0	< 1.0	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	ND	ND	< 1.0	ND	< 1.0	< 1.0	< 1.0	< 1.0	ND	ND	< 1.0	< 1.0	< 1.0	< 2.0	NT	<1.0	<1.0	<1.0
Metals (Total)	6010B	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	
Arsenic																															NT
Iron																															NT
Manganese																															<15
Metals (Dissolved)	6010C	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Iron																															
Others			NT	NT	NT	NT	NT	NT	NT	NT	NT	NT		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	
Methane	8015	µg/l											NT																		0.21
Ethane	8015	µg/l											NT																		<0.23
Ethylene	8015	µg/l											NT																		<0.31
Alkalinity	E310.1	µg/l											NT																		143
Chloride	E325.3	µg/l											275000																		38.6
Chlorine, Total Residual	E330.4	µg/l											< 50																		<0.10
Iron, Ferrous	3500FE B	µg/l											NT																		<0.20
Nitrate & Nitrite as N	E353.2	µg/l											NT																		2.6
Nitrogen, Nitrate	E353.2	µg/l											NT																		2.6
Nitrogen, Nitrite	E354.1	µg/l											NT																		<0.010
Sodium	6010C	µg/l											NT																		NT
Sulfate	E375.4	µg/l											NT																		62.9
Sulfide	E376.1	µg/l											NT																		<2.0
Surfactants	E425.1	µg/l											NT																		<0.10
Total Organic Carbon	E415.1	µg/l											NT																		1.9

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "< " = The analyte was not detected at a concentration above the specified reporting limit.
5. SHA = Sanborn Head & Associates.
6. FD = Field Duplicate Sample.
7. NT = Not Tested.

Qualifying Notes:
B The analyte found in associated method blank.
C+ The result has a high bias due to surrogate recovery above upper control limits.
E The value exceeds the calibration range.
F+ The result has a high bias due to matrix spike recovery above upper control limits.
F- The result has a low bias due to matrix spike recovery below lower control limits.
G The result is estimated due to duplicate precision outside control limits.
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.
K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.
R The result is rejected due to gross exceedence of minimum response factor criteria.

Table 4-2. Chemical Testing Results - GEI Groundwater Sampling
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sample Location:			SH-MW3												COBBLE-IR-1
Sample Name:			SH-MW3	SH-MW-3	SH-MW-3	SH-MW3	SHMW3	SHMW3	SHMW3	SHMW3	SHMW3	SH-MW3	SH-MW3	SH-MW3	COBBLE-IR-1
Well Screen Interval (ft bgs):			10 to 24	10 to 24	10 to 24	10 to 24	10 to 24	10 to 24	10 to 24	10 to 24	10 to 24	10 to 24	10 to 24	10 to 24	Unknown
Sample Date:			7/8/02	5/23/06	10/4/06	1/17/07	4/12/07	4/15/08	4/13/10	4/21/11	4/16/12	4/23/13	4/30/14	4/2/15	6/25/07
Collected By:			SHA	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
Analyte	**Method**	**Units**													
Volatile Organic Compounds (VOCs)															
Acetone	8260	µg/l	< 2500	< 5.0	< 5.0	< 500	< 5.0	< 500	< 5.0	< 500	< 250	< 500	< 10	< 500	5.8
Benzene			< 250	< 0.50	< 0.50	< 50	< 0.50	< 500	< 0.50	< 50	< 25	< 25	< 0.50	< 25	< 0.50
Bromodichloromethane			< 250	< 1.0	< 1.0	< 100	< 1.0	< 100	< 1.0	< 100	< 50	< 50	< 1.0	< 50	0.32 J
2-Butanone (MEK)			< 2500	< 5.0	< 5.0	< 500	< 5.0	< 500	< 5.0	< 500	< 250	< 250	< 5.0	< 250	< 5.0
Carbon disulfide			< 2500	< 5.0	< 5.0	< 500	< 5.0	< 500	< 5.0	< 500	< 250	< 250	< 5.0	< 250	< 5.0
Carbon tetrachloride			< 250	< 1.0	< 1.0	< 100	< 1.0	< 100	< 1.0	< 100	< 50	< 50	< 1.0	< 50	< 1.0
Chlorobenzene			< 250	< 1.0	< 1.0	< 100	< 1.0	< 100	< 1.0	< 100	< 50	< 50	< 1.0	< 50	< 1.0
Chloroethane			< 5.0	< 2.0	< 2.0	< 200	< 2.0	< 200	< 2.0	< 200	< 100	< 100	< 2.0	< 100	< 2.0
Chloroform			< 380	0.88 J	0.81 J	< 100	1.1	< 100	< 1.0	< 100	< 50	< 50	< 1.0	< 50	5.6
Chloromethane			< 1200	< 2.0	< 2.0	< 200	< 2.0	< 200	< 2.0	< 200	< 100	< 100	< 2.0	< 100	< 2.0
1,4-Dichlorobenzene			< 1200	< 1.0	< 1.0	< 100	< 1.0	< 100	< 1.0	< 100	< 50	< 50	< 1.0	< 50	< 1.0
1,1-Dichloroethane			< 380	21.6	36.5	< 100	24.5	< 100	19.5	< 100	< 50	< 50	12.6	24.0 J	< 1.0
1,2-Dichloroethane			< 250	< 1.0	< 1.0	< 100	< 1.0	< 100	< 1.0	< 100	< 50	< 50	< 1.0	< 50	< 1.0
1,1-Dichloroethylene			< 250	91.0	84.4	< 100	91.3	< 100	14.2	< 100	< 50	< 50	12.5	<50	< 1.0
cis-1,2-Dichloroethylene			< 250	37.2	102	< 100	39.8	34.5 J	19.8	< 100	< 50	< 50	40.1	27.7 J	< 1.0
trans-1,2-Dichloroethylene			< 380	< 1.0	1.1	< 100	< 1.0	< 100	< 1.0	< 100	< 50	< 50	< 1.0	< 50	< 1.0
1,2-Dichloropropane			< 880	< 2.0	< 2.0	< 200	< 2.0	< 200	< 2.0	< 200	< 100	< 100	< 2.0	< 100	< 2.0
1,4-Dioxane			NT	< 25	< 25 R	< 2500	< 25	< 2500	< 25	< 2500	< 1300	< 2600	< 25 K-	<1300	< 25
Ethylbenzene			< 250	< 1.0	< 1.0	180	< 1.0	< 100	< 1.0	< 100	< 50	< 50	< 1.0	< 50	< 1.0
2-Hexanone			NT	< 5.0	< 5.0	< 500	< 5.0	< 500	< 5.0	< 500	< 250	< 250	< 5.0	< 250	< 5.0
4-Isopropyltoluene			< 250	< 5.0	< 5.0	< 500	< 5.0	< 500	< 5.0	< 500	< 250	< 250	< 5.0	< 250	< 5.0
Methyl tert-butyl ether			< 5.0	5.1	8.2 J+	< 100	2.4 J+	< 100	0.83 J	< 100	< 50	< 50 K-	< 1.0	< 50	< 1.0
Methylene chloride			< 2500	< 2.0	< 2.0	< 200	< 2.0	< 200	< 2.0	450	< 100	< 100	< 2.0	< 100	< 2.0
Naphthalene			< 1200	< 5.0	< 5.0	392 J	< 5.0	< 500	< 5.0	< 500	< 250	< 250	< 5.0	< 250	< 5.0
Tert-amyl methyl ether			NT	< 2.0	< 2.0	< 200	< 2.0	< 200	< 2.0	< 200	< 100	< 100	< 2.0	< 100	< 2.0
1,1,1,2-Tetrachloroethane			< 250	< 5.0	< 5.0	< 500	< 5.0	< 500	< 5.0	< 500	< 250	< 250	< 5.0	<50	< 5.0
Tetrachloroethylene (PCE)			26000	16900	28300	29700	34000	15200	20300	16900	7310	9650	14500	12800	< 1.0
Tetrahydrofuran			NT	< 10	< 10	< 1000	< 10	< 1000	< 10	< 1000	< 500	< 500	< 10 G	< 500	< 10
Toluene			< 380	< 1.0	< 1.0	< 100	< 1.0	< 100	< 1.0	< 100	< 50	< 50	< 1.0	< 50	< 1.0
1,1,1-Trichloroethane (TCA)			1200	989	1680	806	621 E J+	119	19.8 J	< 100	83.0	< 50	48.0	49.9 J	< 1.0
1,1,2-Trichloroethane			< 380	< 1.0	< 1.0	< 100	< 1.0	< 100	< 1.0	< 100	< 50	< 50	< 1.0	< 50	< 1.0
Trichloroethylene (TCE)			870	482	1030	709	1030	306	383.0	342	152	157	231	218	< 1.0
Vinyl chloride			< 5.0	< 1.0	< 1.0	< 100	0.83 J	< 100	< 1.0	< 100	< 50	< 50	< 1.0	< 50	< 1.0
m,p-Xylene			< 250	< 1.0	< 1.0	484	< 1.0	< 100	< 1.0	< 100	< 50	< 50	< 1.0	< 50	< 1.0
o-Xylene			< 250	< 1.0	< 1.0	< 100	< 1.0	< 100	< 1.0	< 100	< 50	< 50	< 1.0	< 50	< 1.0
Total Xylene			ND	< 1.0	< 1.0	543	< 1.0	< 100	< 1.0	< 100	< 50	< 50	< 1.0	< 50	< 1.0
Metals (Total)	6010B	µg/l	NT	NT	NT		NT	NT	NT	NT	NT	NT	NT	NT	NT
Arsenic						< 10									
Iron						255									
Manganese						NT									
Metals (Dissolved)	6010C	µg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Iron															
Others			NT	NT	NT		NT	NT	NT	NT	NT	NT	NT	NT	NT
Methane	8015	µg/l				< 10									
Ethane	8015	µg/l				< 10									
Ethylene	8015	µg/l				< 10									
Alkalinity	E310.1	µg/l				208000									
Chloride	E325.3	µg/l				362000									
Chlorine, Total Residual	E330.4	µg/l				NT									
Iron, Ferrous	3500FE B	µg/l				NT									
Nitrate & Nitrite as N	E353.2	µg/l				1900									
Nitrogen, Nitrate	E353.2	µg/l				1900									
Nitrogen, Nitrite	E354.1	µg/l				30									
Sodium	6010C	µg/l				NT									
Sulfate	E375.4	µg/l				62600									
Sulfide	E376.1	µg/l				< 2000									
Surfactants	E425.1	µg/l				< 100									
Total Organic Carbon	E415.1	µg/l				< 1000									

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "< " = The analyte was not detected at a concentration above the specified reporting limit.
5. SHA = Sanborn Head & Associates.
6. FD = Field Duplicate Sample.
7. NT = Not Tested.

Qualifying Notes:

B The analyte found in associated method blank.
C+ The result has a high bias due to surrogate recovery above upper control limits.
E The value exceeds the calibration range.
F+ The result has a high bias due to matrix spike recovery above upper control limits.
F- The result has a low bias due to matrix spike recovery below lower control limits.
G The result is estimated due to duplicate precision outside control limits.
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.
K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.
R The result is rejected due to gross exceedence of minimum response factor criteria.

Table 4-3. Chemical Testing Results - Kleinfelder Groundwater Sampling
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

		Sample Location:	KE-114		KE-115		KE-116		KE-117			MW-5R
		Sample Name:	KE-114	KE-114	KE-115	KE-115	KE-116	KE-116	KE-117	KE-117[a]	KE-117	MW-5R
		Well Screen Interval (ft bgs):	5 to 30	5 to 30	5 to 30	5 to 30	5 to 30	5 to 30	5 to 20	5 to 20	5 to 20	5 to 30
		Sample Date:	9/27/12	2/6/14	9/27/12	2/6/14	9/27/12	2/6/14	9/27/12	2/6/14	4/9/14	2/6/14
		Collected By:	Kleinfelder	Kleinfelder	Kleinfelder	Kleinfelder	Kleinfelder	Kleinfelder	Kleinfelder	Kleinfelder	Kleinfelder	Kleinfelder
Analyte	**Method**	**Units**										
Volatile Organic Compounds (VOCs)	SW-846 8260C	µg/l										
Acetone			< 10	< 10	< 10	< 10	< 10	< 10	56	< 10	< 20	< 10
Benzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	3.8	< 1.0	< 1.0
Carbon disulfide			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	73	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	12	< 1.0	< 1.0
1,1-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	8.0	< 1.0	< 1.0
cis-1,2-Dichloroethylene			< 1.0	< 1.0	1.8	1.0	< 1.0	< 1.0	< 5.0	410	2.8	< 1.0
Ethylbenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
Methyl tert-butyl ether			< 1.0	< 1.0	1.4	2.4	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
Tetrachloroethylene (PCE)			< 1.0	1.1	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	760	4.3	< 1.0
Tetrahydrofuran			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 10	< 2.0	< 2.0	< 2.0
Toluene			< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane (TCA)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	11	< 1.0	< 1.0
1,1,2-Trichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
Trichloroethylene (TCE)			< 1.0	< 1.0	1.2	< 1.0	< 1.0	< 1.0	< 5.0	150	1.2	< 1.0
1,2,4-Trimethylbenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
Vinyl chloride			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 10	19	< 2.0	< 2.0
m,p-Xylene			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 10	< 2.0	< 2.0	< 2.0
o-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 2.0	< 1.0

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "<" = The analyte was not detected at a concentration above the specified reporting limit.

Footnote:

(a) The groundwater sample from KE-117 on February 6, 2014 was collected during overpumping of the well to simulate construction dewatering conditions and was not collected via low flow sampling techniques.
(b) WashSW was a grab sample collected from the base of an open excavation within Washington Street.

Table 4-3. Chemical Testing Results - Kleinfelder Groundwater Sampling
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

		Sample Location:	WashSW[(b)]	KE-202D	KE-202S	KE-204	KE-205	KE-206	KE-207	KE-208	KE209	KE-210
		Sample Name:	WashSW[(b)]	KE-202D	KE-202S	KE-204	KE-205	KE-206	KE-207	KE-208	KE209	KE-210
		Well Screen Interval (ft bgs):	Vac-Ex	~25 to 35	5 to 20	15 to 25	9.5 to 19.5	10 to 21	8 to 18	4 to 14	9 to 19	8.5 to 18.5
		Sample Date:	2/6/14	4/8/14	4/8/14	4/14/14	4/15/14	4/14/14	4/15/14	4/14/14	4/15/14	4/15/14
		Collected By:	Kleinfelder	Kleinfelder	Kleinfelder	Kleinfelder	Kleinfelder	Kleinfelder	Kleinfelder	Kleinfelder	Kleinfelder	Kleinfelder
Analyte	**Method**	**Units**										
Volatile Organic Compounds (VOCs)	SW-846 8260C	µg/l										
Acetone			< 10	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Benzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Carbon disulfide			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane			4.4	< 1.0	< 1.0	3.4	< 1.0	6.0	< 1.0	< 1.0	< 1.0	1000
1,1-Dichloroethylene			1.8	< 1.0	< 1.0	2.6	< 1.0	4.6	< 1.0	< 1.0	< 1.0	790
cis-1,2-Dichloroethylene			26	12	< 0.40	83	< 1.0	89	< 1.0	1.2	< 1.0	8.4
Ethylbenzene			7.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl tert-butyl ether			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	71
Tetrachloroethylene (PCE)			2000	33	< 1.0	14000	1.0	12000	2.5	73	< 1.0	14000
Tetrahydrofuran			3.3	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Toluene			2.8	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane (TCA)			13	< 1.0	< 1.0	16	< 1.0	35.0	< 1.0	< 1.0	< 1.0	860
1,1,2-Trichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.8
Trichloroethylene (TCE)			38	5.0	< 1.0	81.0	< 1.0	86.0	< 1.0	2.0	< 1.0	24000
1,2,4-Trimethylbenzene			1.1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	3.6
m,p-Xylene			37	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
o-Xylene			19	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "<" = The analyte was not detected at a concentration above the specified reporting limit.

Footnote:

(a) The groundwater sample from KE-117 on February 6, 2014 was collected during overpumping of the well to simulate construction dewatering conditions and was not collected via low flow sampling techniques.
(b) WashSW was a grab sample collected from the base of an open excavation within Washington Street.

Table 4-4. Chemical Testing Results - Sub-Slab Soil Vapor

Phase V Status Report 17 and Remeidal Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

			Location Name:	13 Knowlton Street							
			Sample Name:	13 KNOW-SS1		13KNOW-SS1		13KNOW-SS1		13KNOW-SS1	
			Sample Date:	6/4/2007		12/22/2016		3/12/2019		11/22/2019	
			Units:	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv
Analyte	**Method**	**Residential Sub-Slab Soil Gas Screening Values (µg/m^3)**									
Volatile Organic Compounds (VOCs)	TO-15										
Carbon Tetrachloride		42		0.82 J	0.13 J	NT	NT	NT	NT	NT	NT
Tetrachloroethene		98		4.5	0.67	1.0 J	0.15 J	1.92	0.283	<1.36	<0.200

General Notes
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m^3 = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. On December 14, 2016, GEI observed the installation of a shutdown valve on the riser pipe of the SSDS.
5. The shutdown valve was closed for one week prior to the soil vapor sample collected on December 22, 2016.
6. Residential Sub-Slab Soil Gas Screening Values taken from the Massachusetts Department of Environmental Protection "Vapor Intrusion Guidance: Site Assessment, Mitigation and Closure" dated October 2016.
7. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
8. Highlighted sample indicates most recent sampling round.

Qualifying Note:
J The reported result is below the laboratory reporting limit and is estimated.

Table 4-5. Chemical Testing Results - 163 Glen Street Post-EPMM Installation Soil Vapor
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

		Location Name:	163 Glen Street													
		Sample Name:	163GLEN-SSV1		163GLEN-SSV2		163GLEN-SSV3		163GLEN-SSV2		163GLEN-SSV3		163GLEN-SSV2		163GLEN-SSV3	
		Sample Date:	2/14/2018		2/14/2018		2/14/2018		4/2/2019		4/2/2019		11/27/2019		11/27/2019	
		Units:	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv
Analyte	**Method**	**Residential Sub-Slab Soil Gas Screening Values (µg/m^3)**														
Volatile Organic Compounds (VOCs)	TO-15 by SIM															
1,1-Dichloroethylene		56	< 0.793	< 0.200	3.96	1.00	1.82	0.460	< 7.93	< 2.00	< 7.93	< 2.00	<0.396	<0.100	<0.396	<0.100
cis-1,2-Dichloroethylene		56	1.15	0.290	< 0.793	< 0.200	< 0.793	< 0.200	< 7.93	< 2.00	< 7.93	< 2.00	<0.396	<0.100	<0.396	<0.100
Tetrachloroethylene (PCE)		98	4.20	0.620	1.63	0.240	< 1.36	< 0.200	< 13.6	< 2.00	< 13.6	< 2.00	2.68	0.395	2.54	0.375
1,1,1-Trichloroethane		210	< 1.09	< 0.200	3.93	0.720	< 1.09	< 0.200	< 10.9	< 2.00	< 10.9	< 2.00	23.4	4.28	3.19	0.585
Trichloroethylene (TCE)		28	1.45	0.270	7.31	1.36	2.74	0.510	23.5	4.37	14.4	2.680	12.7	2.360	7.58	1.41
Vinyl Chloride		19	1.12	0.440	8.92	3.49	3.73	1.46	6.29	2.46	< 5.11	< 2.00	2.61	1.02	0.831	0.325

General Notes

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the
2. µg/m^3 = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. Residential Sub-Slab Soil Gas Screening Values taken from the Massachusetts Department of Environmental Protection (MassDEP) "Vapor Intrusion Guidance: Site Assessment, Mitigation and Closure" dated October 2016.
5. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
6. Highlighted sample indicates most recent sampling round.

Table 4-6. Chemical Testing Results - Pre- and Post-EPMM Installation Indoor Air
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sample Location:			**13 Knowlton Street Pre-EPMM**						**13 Knowlton Street Post-EPMM**							
Sample Name:			**13KNOW-B**		**13KNOW-1**		**13KNOW-B**		**13KNOW-1**		**13KNOW-B**		**13KNOW-1**		**13KNOW-B**	
Sample Date:			**8/28/07**		**8/28/07**		**11/7/07**		**3/3/10**		**3/3/10**		**2/1/11**		**2/1/11**	
Collected By:			**GEI**		**GEI**		**GEI**		**GEI**		**GEI**		**GEI**		**GEI**	
Units:			**µg/m³**	**ppbv**	**µg/m³**	**ppbv**	**µg/m³**	**ppbv**	**µg/m³**	**ppbv**	**µg/m³**	**ppbv**	**µg/m³**	**ppbv**	**µg/m³**	**ppbv**
Analyte	**Method**	**MassDEP Residential Indoor Air Threshold Values (µg/m³)**														
Volatile Organic Compounds (VOCs)	TO-15															
Carbon tetrachloride		0.54	0.69 J	0.11 J	0.60 J	0.096 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	NT	NT	NT	NT
1,2-Dichloroethane		0.09	**3.1**	0.77	< 0.81	< 0.20	**1.1**	0.27	**3.6**	0.89	< 0.81	< 0.20	NT	NT	NT	NT
Tetrachloroethylene (PCE)		1.4	**6.0**	0.89	**4.5**	0.67	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the laboratory data sheets.
2. µg/m³ = micrograms per cubic meter.
3. ppbV = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. The samples collected after November 2007 were collected over a 24-hour period ending on the date shown.
6. Residential Threshold Values taken from the Massachusetts Department of Environmental Protection (MassDEP) "Vapor Intrusion Guidance: Site Assessment, Mitigation and Closure" dated October 2016.
7. On December 14, 2016, GEI observed the installation of a shutdown valve on the riser pipe of the SSDS.
8. The shutdown valve was closed for one week prior to collection of indoor air samples on December 21, 2016, February 13, 2018, March 12, 2019, and November 14, 2019.
9. Highlighted sample indicates most recent sampling round.
10. Values in bold exceed the applicable MassDEP Residential Threshold Values.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.

Table 4-6. Chemical Testing Results - Pre- and Post-EPMM Installation Indoor Air
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sample Location:			13 Knowlton Street Post-EPMM Continued								13 Knowlton Street Post-EPMM Continued							
Sample Name:			13KNOW-1		13KNOW-B		13KNOW-1		13KNOW-B		13KNOW-1		13KNOW-B		13KNOW-1		13KNOW-B	
Sample Date:			12/21/16		12/21/16		2/13/18		2/13/18		3/12/19		3/12/19		11/22/19		11/22/19	
Collected By:			GEI		GEI		GEI		GEI		GEI		GEI		GEI		GEI	
Units:			µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv
Analyte	**Method**	**MassDEP Residential Indoor Air Threshold Values (µg/m³)**																
Volatile Organic Compounds (VOCs)	TO-15																	
Carbon tetrachloride		0.54	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dichloroethane		0.09	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.033	**0.134**	<0.020	<0.081
Tetrachloroethylene (PCE)		1.4	0.32	0.047	**3.8**	0.56	0.156	0.023	**1.71**	0.252	0.210	0.031	**4.70**	0.693	0.353	0.052	**3.06**	0.451

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the laboratory data sheets.
2. µg/m³ = micrograms per cubic meter.
3. ppbV = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. The samples collected after November 2007 were collected over a 24-hour period ending on the date shown.
6. Residential Threshold Values taken from the Massachusetts Department of Environmental Protection (MassDEP) "Vapor Intrusion Guidance: Site Assessment, Mitigation and Closure" dated October 2016.
7. On December 14, 2016, GEI observed the installation of a shutdown valve on the riser pipe of the SSDS.
8. The shutdown valve was closed for one week prior to collection of indoor air samples on December 21, 2016, February 13, 2018, March 12, 2019, and November 14, 2019.
9. Highlighted sample indicates most recent sampling round.
10. Values in bold exceed the applicable MassDEP Residential Threshold Values.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.

Table 4-7. Chemical Testing Results - 163 Glen Street Post-EPMM Installation Indoor Air
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

			Sample Location:	163 Glen Street															
			Sample Name:	163GLEN-IA-1		163GLEN-IA-2		163GLEN-IA-3		163GLEN-IA-4		163GLEN-IA-1		163GLEN-IA-2		163GLEN-IA-3		163GLEN-IA-4	
			Sample Date:	4/2/19		4/2/19		4/2/19		4/2/19		11/27/19		11/27/19		11/27/19		11/27/19	
			Units:	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv
Analyte	**Method**	**MassDEP Residential Indoor Air Threshold Values (µg/m^3)**																	
Volatile Organic Compounds (VOCs)	TO-15																		
Carbon tetrachloride		0.54		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Trans-1,2-Dichloroethylene (DCE)		0.8		< 0.079	< 0.020	1.2	0.303	< 0.079	< 0.020	< 0.079	< 0.020	< 0.079	< 0.020	<0.020	<0.079	<0.079	<0.020	<0.079	<0.020
Tetrachloroethylene (PCE)		1.4		0.3	0.048	0.224	0.03	0.183	0.027	0.156	0.023	0.271	0.040	0.231	0.034	0.197	0.029	0.237	0.035
Trichloroethylene (TCE)		0.4		<0.107	<0.020	<0.107	<0.020	<0.107	<0.020	<0.107	<0.020	<0.107	<0.020	**0.769**	0.143	<0.107	<0.020	0.124	0.023
Trichloroethane,1,1,1- (TCA)		3		< 0.109	< 0.020	< 0.109	< 0.020	< 0.109	< 0.020	< 0.109	< 0.020	< 0.109	< 0.020	< 0.109	< 0.020	<0.109	<0.020	<0.109	<0.020

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m^3 = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.

Table 4-8. Summary of Meteorological Data During Air Sampling Events
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Sample Location	Sample Date	Sample Location	Inside Temperature (ºF)[1,3]		Inside Barometric Pressure (in. Hg)[2,4]		Outside Temperature (ºF)[1,3]		Outside Barometric Pressure (in. Hg)[2,4]		Prevailing Wind Direction		General Weather Conditions		Significant precipitation within 12 hours prior to Sampling?
			Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	
Residences															
13 Knowlton Street	11/22/2019	B	63.3	58.4	29	29	40	50	29.9	29.78	North	Southwest	Sunny	Cloudy	No
		1	67.0	67.0	29	29									
163 Glen Street	11/27/2019	IA-1	NM	NM	NM	NM	46	45	29.99	30.07	Southwest	Northeast	Partly cloudy	Partly cloudy	No
		IA-2	NM	NM	NM	NM									
		IA-3	NM	NM	NM	NM									
		IA-4	NM	NM	NM	NM									

General Notes:
1. ºF = degrees Fahrenheit.
2. in. Hg = inches of mercury.
3. Temperatures were measured in the field using a hand-held thermometer.
4. Barometric pressures were measured in the field with a digital barometer.
5. NM = Not Measured.
6. NA = Not Applicable.
7. Samples were collected from the basement (B) and the first floor (1) of 13 Knolwton.
8. Samples were collected from the floor only of 163 Glen Street because there is no basement.

Table 5-1. Summary of SSDS Monitoring Events - Capuano Center
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Monitoring Date	Monitoring Event per RMR Report Period	Type of Monitoring Event	SSDS Field Parameters Measured	Analytical Samples Collected (Yes/No)?
7/10/2019	1	SSDS Quarterly Monitoring	-Pressure readings, VOC concentrations, and flow rate at each manifold pipe. -Pressure readings, VOC concentrations, and flow rate at all the exterior extraction pipes.	No
10/17/2019	2	SSDS Quarterly Monitoring	-Pressure readings, VOC concentrations, and flow rate at each manifold pipe. -Pressure readings, VOC concentrations, and flow rate at all the exterior extraction pipes.	No

General Notes:
1. SSDS = Sub-Slab Depressurization System.
2. RMR = Remedial Monitoring Report.
3. VOC = Volatile Organic Compound.
4. VOC measurements collected with a ppm-RAE calibrated to 100 parts per million (ppm) isobutylene.
5. Pressure readings collected using a Dwyer 475-000-FM manometer.

Table 5-2. Chemical Testing Results - Capuano Center Indoor and Outdoor Air
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
Capuano Center
150 Glen Street
Somerville, Massachusetts

	Sample Location:	Cafetorium		Room 101				Room 108				Room 121		Room 122						Room 125				Room 126					
	Sample ID:	150 GLEN-CAF		150 GLEN-ROOM 101A		150 GLEN-ROOM 101B		150 GLEN-ROOM 108A		150 GLEN-ROOM 108B		150 GLEN-ROOM 121		150 GLEN-ROOM 122		150 GLEN-RM 122		150 GLEN-RM 122		150 GLEN-ROOM 125A		150 GLEN-ROOM 125B		150 GLEN-ROOM 126		150 GLEN-ROOM 100 (FD-Room 126)		150 GLEN-RM 126	
	Sample Date:	1/6/07		12/27/06		12/28/06		12/27/06		12/28/06		1/6/07		1/6/07		2/7/07		5/23/15		12/27/06		12/28/06		1/13/07		1/13/07		2/7/07	
	Units:	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv
Analyte	**Method**																												
Volatile Organic Compounds (VOCs)	TO-15																												
Carbon tetrachloride		0.49 J J+	0.078 J J+	< 1.3	< 0.20	< 1.3	< 0.20	0.94 J	0.15 J	< 1.3	< 0.20	0.52 J J+	0.082 J J+	0.51 J	0.081 J J+	0.69 J	0.11 J	NT	NT	1.0 J	0.16 J	< 1.3	< 0.20	0.69 J	0.11 J	0.63 J	0.10 J	0.94 J	0.15 J
Dichloroethane,1,1-		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethane,1,2-		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	NT	NT	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethene,1,1-		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Dichloroethylene, cis-1,2-		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Tetrachloroethane,1,1,2,2-		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		0.88 J J+	0.13 J J+	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	0.88 J	0.13 J	0.75 J	0.11 J	< 1.4	< 0.20
Trichloroethane,1,1,1- (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m³ = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. The samples collected in August 2009, November 2009, February 2010, November 2010, March 2011, and May 2015 were collected over a 24 hour period.
7 NT = Not Tested.

Qualifying Notes:
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.

Table 5-2. Chemical Testing Results - Capuano Center Indoor and Outdoor Air
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
Capuano Center
150 Glen Street
Somerville, Massachusetts

	Sample Location:	Room 126 (continued)																									
	Sample ID:	150GLEN-ROOM 126		150 GLEN-ROOM 126		150 GLEN-RM 126		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126	
	Sample Date:	3/8/07		4/20/07		5/17/07		7/30/07		9/10/07		10/8/07		10/14/07		11/15/07		12/13/07		1/21/08		2/19/08		2/22/08		3/172008		4/21/08	
	Units:	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv
Analyte	**Method**																										
Volatile Organic Compounds (VOCs)	TO-15																										
Carbon tetrachloride		< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.60 J	0.095 J	0.69 J	0.11 J	0.82 J	0.13 J	< 1.3	< 0.20	0.69 J	0.11 J	0.59 J	0.093 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.69 J	0.11 J
Dichloroethane,1,1-		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethane,1,2-		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethene,1,1-		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Dichloroethylene, cis-1,2-		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Tetrachloroethane,1,1,2,2-		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	1.0 J	0.15 J	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Trichloroethane,1,1,1- (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m³ = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. The samples collected in August 2009, November 2009, February 2010, November 2010, March 2011, and May 2015 were collected over a 24 hour period.
7 NT = Not Tested.

Qualifying Notes:
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.

Table 5-2. Chemical Testing Results - Capuano Center Indoor and Outdoor Air
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
Capuano Center
150 Glen Street
Somerville, Massachusetts

	Sample Location:	Room 126 (continued)																Room 134						Room 136		Room 137			
	Sample ID:	150GLEN-RM126		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126		150 GLEN-ROOM 134		150 GLEN-RM 134		150 GLEN-RM 134		150 GLEN-ROOM 136		150 GLEN-ROOM 137A		150 GLEN-ROOM 137B	
	Sample Date:	8/18/08		11/24/08		3/2/09		8/27/09		11/11/09		2/19/10		11/11/10		3/17/11		5/23/15		1/13/07		2/7/07		5/23/15		1/13/07		1/6/07		1/6/07	
	Units:	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv
Analyte	**Method**																														
Volatile Organic Compounds (VOCs)	TO-15																														
Carbon tetrachloride		0.60 J	0.096 J	0.60 J	0.096 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	NT	NT	NT	NT	NT	NT	0.75 J	0.12 J	0.94 J	0.15 J	NT	NT	0.69 J	0.11 J	0.52 J J+	0.082 J J+	< 1.3	< 0.20
Dichloroethane,1,1-		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.53	< 0.13	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethane,1,2-		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	NT	NT	NT	NT	NT	NT	< 0.81	< 0.20	< 0.81	< 0.20	NT	NT	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethene,1,1-		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.52	< 0.13	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Dichloroethylene, cis-1,2-		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.37	< 0.094	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Tetrachloroethane,1,1,2,2-		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	1.2 J	0.18 J	< 1.4	< 0.20	< 1.4	< 0.20	< 0.82	< 0.12	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 0.95	< 0.14	< 1.4	< 0.20	3.2	0.47	< 1.4	< 0.20	< 1.4	< 0.20	2.1	0.31	< 1.4	< 0.20	< 1.4	< 0.20
Trichloroethane,1,1,1- (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 0.76	< 0.14	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 0.70	< 0.13	< 1.1	< 0.20	0.54 J	0.10 J	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m³ = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. The samples collected in August 2009, November 2009, February 2010, November 2010, March 2011, and May 2015 were collected over a 24 hour period.
7 NT = Not Tested.

Qualifying Notes:

J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.

Table 5-2. Chemical Testing Results - Capuano Center Indoor and Outdoor Air
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
Capuano Center
150 Glen Street
Somerville, Massachusetts

	Sample Location:	Room 138																									
	Sample ID:	RM138		150 GLEN-ROOM 138		150 GLEN-ROOM 138		150 GLEN-ROOM 138		150 GLEN-ROOM 138 (Alpha duplicate)		150 GLEN-RM 138		150 GLEN-RM 139 (FD-Room 138)		150GLEN-ROOM 138		150GLEN-ROOM 139 (FD-Room 138)		150 GLEN-ROOM 138		150GLEN-ROOM 139 (FD-Room 138)		150 GLEN-RM 138		150GLEN-ROOM 139 (FD-Room 138)		150GLEN-RM138	
	Sample Date:	1/2/07		1/6/07		1/13/07		1/26/07		1/26/07		2/7/07		2/7/07		3/8/07		3/8/07		4/20/07		4/20/07		5/17/07		5/17/07		7/30/07	
	Units:	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv
Analyte	**Method**																												
Volatile Organic Compounds (VOCs)	TO-15																												
Carbon tetrachloride		< 1.3	< 0.20	0.49 J J+	0.078 J J+	0.82 J	0.13 J	0.82 J	0.13 J	< 0.126	< 0.020	0.75 J	0.12 J	0.52 J	0.082 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.61 J	0.097 J
Dichloroethane,1,1-		0.45 J	0.11 J	0.77 J J+	0.19 J J+	0.57 J	0.14 J	0.65 J	0.16 J	< 0.081	< 0.020	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethane,1,2-		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.079	< 0.020	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethene,1,1-		< 0.79	< 0.20	2.1 J+	0.54 J+	< 0.79	< 0.20	< 0.79	< 0.20	< 0.079	< 0.020	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Dichloroethylene, cis-1,2-		< 0.79	< 0.20	0.83 J+	0.21 J+	< 0.79	< 0.20	< 0.79	< 0.20	< 0.0819	< 0.020	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Tetrachloroethane,1,1,2,2-		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4 J+	< 0.20 J+
Tetrachloroethylene (PCE)		14	2.0	60 J+	8.8 J+	20	3.0	20	3.0	32.6	4.8	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	1.2 J	0.17 J
Trichloroethane,1,1,1- (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 0.109	< 0.020	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		2.3	0.42	7 J+	1.3 J+	3.1	0.57	3.3	0.61	4.26	0.794	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m³ = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. The samples collected in August 2009, November 2009, February 2010, November 2010, March 2011, and May 2015 were collected over a 24 hour period.

7 NT = Not Tested.

Qualifying Notes:

J The reported result is below the laboratory reporting limit and is estimated.

J+ The reported result is estimated.

Table 5-2. Chemical Testing Results - Capuano Center Indoor and Outdoor Air
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
Capuano Center
150 Glen Street
Somerville, Massachusetts

	Sample Location:	Room 138 (continued)																									
	Sample ID:	150GLEN-ROOM 139 (FD-Room 138)		150GLEN-RM138		150GLEN-ROOM 139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM239 (FD-Room 138)		150GLEN-RM238 (FD-Room 138)		150GLEN-RM138		150GLEN-ROOM 139 (FD-Room 138)		150GLEN-RM238 (FD-Room 138)		150GLEN-RM239 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138	
	Sample Date:	7/30/07		9/10/07		9/10/07		10/8/07		10/8/07		10/8/07		10/8/07		10/14/07		10/14/07		10/14/07		10/14/07		11/15/07		11/15/07		12/13/07	
	Units:	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv
Analyte	**Method**																												
Volatile Organic Compounds (VOCs)	TO-15																												
Carbon tetrachloride		0.69 J	0.11 J	0.69 J	0.11 J	0.69 J	0.11 J	0.69 J	0.11 J	0.88 J	0.14 J	0.82 J	0.13 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.59 J	0.094 J	0.62 J	0.099 J	0.69 J	0.11 J	0.69 J	0.11 J	0.57 J	0.091 J
Dichloroethane,1,1-		< 0.81 J+	< 0.20 J+	< 0.81 J+	< 0.20 J+	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethane,1,2-		< 0.81 J+	< 0.20 J+	< 0.81 J+	< 0.20 J+	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethene,1,1-		< 0.79 J+	< 0.20 J+	< 0.79 J+	< 0.20 J+	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Dichloroethylene, cis-1,2-		< 0.79 J+	< 0.20 J+	< 0.79 J+	< 0.20 J+	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Tetrachloroethane,1,1,2,2-		< 1.4 J+	< 0.20 J+	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		1.1 J	0.16 J	< 1.4 J+	< 0.20 J+	6.5	0.96	< 1.4	< 0.20	1.5	0.22	1.2 J	0.18 J	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Trichloroethane,1,1,1- (TCA)		< 1.1 J+	< 0.20 J+	< 1.1 J+	< 0.20 J+	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1 J+	< 0.20 J+	< 1.1 J+	< 0.20 J+	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m³ = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. The samples collected in August 2009, November 2009, February 2010, November 2010, March 2011, and May 2015 were collected over a 24 hour period.
7 NT = Not Tested.

Qualifying Notes:
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.

Table 5-2. Chemical Testing Results - Capuano Center Indoor and Outdoor Air
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
Capuano Center
150 Glen Street
Somerville, Massachusetts

	Sample Location:	Room 138 (continued)																									
	Sample ID:	150GLEN-RM139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138	
	Sample Date:	12/13/07		1/21/08		1/21/08		2/19/08		2/19/08		2/22/08		2/22/08		3/17/08		3/17/08		4/21/08		4/21/08		8/18/08		8/18/08		11/24/08	
	Units:	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv
Analyte	**Method**																												
Volatile Organic Compounds (VOCs)	TO-15																												
Carbon tetrachloride		< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.69 J	0.11 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.75 J	0.12 J	0.69 J	0.11 J	0.69 J	0.11 J	0.63 J	0.10 J	0.62 J	0.098 J
Dichloroethane,1,1-		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethane,1,2-		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethene,1,1-		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Dichloroethylene, cis-1,2-		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Tetrachloroethane,1,1,2,2-		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	1.8	0.27	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Trichloroethane,1,1,1- (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m³ = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. The samples collected in August 2009, November 2009, February 2010, November 2010, March 2011, and May 2015 were collected over a 24 hour period.
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Qualifying Notes:
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.

Table 5-2. Chemical Testing Results - Capuano Center Indoor and Outdoor Air
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
Capuano Center
150 Glen Street
Somerville, Massachusetts

	Sample Location:	Room 138 (continued)																									
	Sample ID:	150GLEN-RM139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138	
	Sample Date:	11/24/08		3/2/09		3/2/09		8/27/09		8/27/09		11/11/09		11/11/09		2/19/10		2/19/10		11/11/10		11/11/10		3/17/11		3/17/11		5/23/15	
	Units:	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv
Analyte	**Method**																												
Volatile Organic Compounds (VOCs)	TO-15																												
Carbon tetrachloride		0.63 J	0.10 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dichloroethane,1,1-		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.53	< 0.13	< 0.53	< 0.13	< 0.81	< 0.20
Dichloroethane,1,2-		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dichloroethene,1,1-		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.52	< 0.13	< 0.52	< 0.13	< 0.79	< 0.20
Dichloroethylene, cis-1,2-		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.37	< 0.094	< 0.37	< 0.094	< 0.79	< 0.20
Tetrachloroethane,1,1,2,2-		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 0.82	< 0.12	< 0.82	< 0.12	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 0.95	< 0.14	< 0.95	< 0.14	< 1.4	< 0.20
Trichloroethane,1,1,1- (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 0.76	< 0.14	< 0.76	< 0.14	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 0.70	< 0.13	< 0.70	< 0.13	< 1.1	< 0.20

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m³ = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. The samples collected in August 2009, November 2009, February 2010, November 2010, March 2011, and May 2015 were collected over a 24 hour period.
7 NT = Not Tested.

Qualifying Notes:
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.

Table 5-2. Chemical Testing Results - Capuano Center Indoor and Outdoor Air
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
Capuano Center
150 Glen Street
Somerville, Massachusetts

	Sample Location:	Room 141																									
	Sample ID:	150 GLEN-ROOM 141		150GLEN-ROOM 141		150 GLEN-ROOM 141		150 GLEN-RM 141		150GLEN-RM141		150GLEN-RM141		150GLEN-RM141		150GLEN-RM141		150GLEN-RM141		150GLEN-RM141		150GLEN-RM141		150GLEN-RM141		150GLEN-RM141	
	Sample Date:	1/6/07		3/8/07		4/20/07		5/17/07		7/30/07		9/10/07		10/8/07		10/14/07		11/15/07		12/13/07		1/21/08		2/19/08		2/22/08		3/17/08	
	Units:	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv
Analyte	**Method**																										
Volatile Organic Compounds (VOCs)	TO-15																										
Carbon tetrachloride		0.45 J J+	0.071 J J+	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3 J+	< 0.20 J+	0.75 J	0.12 J	< 1.3	< 0.20	< 1.3	< 0.20	0.69 J	0.11 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.69 J	0.11 J	< 1.3	< 0.20
Dichloroethane,1,1-		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81 J+	< 0.20 J+	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethane,1,2-		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81 J+	< 0.20 J+	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethene,1,1-		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79 J+	< 0.20 J+	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Dichloroethylene, cis-1,2-		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79 J+	< 0.20 J+	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Tetrachloroethane,1,1,2,2-		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4 J+	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4 J+	< 0.20 J+	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Trichloroethane,1,1,1- (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1 J+	< 0.20 J+	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1 J+	< 0.20 J+	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m³ = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. The samples collected in August 2009, November 2009, February 2010, November 2010, March 2011, and May 2015 were collected over a 24 hour period.
7 NT = Not Tested.

Qualifying Notes:
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.

Table 5-2. Chemical Testing Results - Capuano Center Indoor and Outdoor Air
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
Capuano Center
150 Glen Street
Somerville, Massachusetts

	Sample Location:	Room 141 (continued)																Room 142											
	Sample ID:	150GLEN-RM141		150GLEN-RM141		150GLEN-RM141		150GLEN-RM141		150GLEN-RM141		150GLEN-RM141		150GLEN-RM141		150GLEN-RM141		RM142		150 GLEN-ROOM 142		150 GLEN-RM 142		150GLEN-ROOM 142		150 GLEN-ROOM 142		150 GLEN-RM 142		150GLEN-RM142	
	Sample Date:	4/21/08		8/18/08		11/24/08		3/2/09		8/27/09		2/19/10		11/11/10		3/17/11		1/2/07		1/6/07		2/7/07		3/8/07		4/20/07		5/17/07		7/30/07	
	Units:	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv
Analyte	**Method**																														
Volatile Organic Compounds (VOCs)	TO-15																														
Carbon tetrachloride		0.69 J	0.11 J	0.60 J	0.096 J	0.63 J	0.10 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	NT	NT	NT	NT	< 1.3	< 0.20	0.52 J J+	0.083 J J+	0.82 J	0.13 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.63 J	0.10 J
Dichloroethane,1,1-		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.53	< 0.13	1.4	0.35	1.2 J+	0.29 J+	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethane,1,2-		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	NT	NT	NT	NT	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	1.0	0.25
Dichloroethene,1,1-		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.52	< 0.13	0.87	0.22	2.5 J+	0.63 J+	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Dichloroethylene, cis-1,2-		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.37	< 0.094	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Tetrachloroethane,1,1,2,2-		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 0.82	< 0.12	< 1.4	< 0.20	< 1.4 J+	< 0.20 J+	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 0.95	< 0.14	28	4.1	45 J+	6.6 J+	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Trichloroethane,1,1,1- (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 0.76	< 0.14	< 1.1	< 0.20	0.33 J J+	0.061 J J+	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	0.62 J	0.092 J	0.62 J	0.092 J	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 0.70	< 0.13	3.7	0.69	5.4 J+	1 J+	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m³ = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. The samples collected in August 2009, November 2009, February 2010, November 2010, March 2011, and May 2015 were collected over a 24 hour period.

7 NT = Not Tested.

Qualifying Notes:

J The reported result is below the laboratory reporting limit and is estimated.

J+ The reported result is estimated.

Table 5-2. Chemical Testing Results - Capuano Center Indoor and Outdoor Air
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
Capuano Center
150 Glen Street
Somerville, Massachusetts

	Sample Location:	Room 142 (cont)																											
	Sample ID:	150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142	
	Sample Date:	9/10/07		10/8/07		10/14/07		11/15/07		12/13/07		1/21/08		2/19/08		2/22/08		3/17/08		4/21/08		8/18/08		11/24/08		3/2/09		8/27/09		11/11/09	
	Units:	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv
Analyte	**Method**																														
Volatile Organic Compounds (VOCs)	TO-15																														
Carbon tetrachloride		0.75 J	0.12 J	< 1.3	< 0.20	< 1.3	< 0.20	0.69 J	0.11 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.75 J	0.12 J	< 1.3	< 0.20	0.69 J	0.11 J	< 1.3	< 0.20	0.69 J	0.11 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20
Dichloroethane,1,1-		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethane,1,2-		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethene,1,1-		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Dichloroethylene, cis-1,2-		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Tetrachloroethane,1,1,2,2-		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Trichloroethane,1,1,1- (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m³ = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. The samples collected in August 2009, November 2009, February 2010, November 2010, March 2011, and May 2015 were collected over a 24 hour period.
7 NT = Not Tested.

Qualifying Notes:
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.

Table 5-2. Chemical Testing Results - Capuano Center Indoor and Outdoor Air
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
Capuano Center
150 Glen Street
Somerville, Massachusetts

	Sample Location:	Room 142 (continued)								Room 144				Room 145		Room 146													
	Sample ID:	150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150 GLEN-ROOM 144		150 GLEN-ROOM 144 (Alpha duplicate)		150 GLEN-ROOM 145		150 GLEN-ROOM 146A		150 GLEN-ROOM 146B		150 GLEN-ROOM 146B (FD-Room 146)		RM146		150 GLEN-ROOM 146		150 GLEN-RM 146		150GLEN-ROOM 146		150 GLEN-ROOM 146	
	Sample Date:	2/19/10		11/11/10		3/17/11		5/23/15		1/13/07		1/13/07		1/6/07		12/27/06		12/28/06		12/28/06		1/2/07		1/6/07		2/7/07		3/8/07		4/20/07	
	Units:	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv
Analyte	**Method**																														
Volatile Organic Compounds (VOCs)	TO-15																														
Carbon tetrachloride		< 1.3	< 0.20	NT	NT	NT	NT	NT	NT	0.88 J	0.14 J	< 3.14	< 0.50	0.45 J J+	0.071 J J+	1.1 J	0.18 J	< 1.3	< 0.20	0.49 J	0.078 J	0.63 J	0.10 J	< 1.3	< 0.20	0.75 J	0.12 J	< 1.3	< 0.20	< 1.3	< 0.20
Dichloroethane,1,1-		< 0.81	< 0.20	< 0.81	< 0.20	< 0.53	< 0.13	< 0.81	< 0.20	< 0.81	< 0.20	< 2.02	< 0.50	< 0.81	< 0.20	10	2.5	3.6	0.88	3.3	0.82	0.53 J	0.13 J	0.57 J J+	0.14 J J+	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethane,1,2-		< 0.81	< 0.20	NT	NT	NT	NT	NT	NT	< 0.81	< 0.20	< 1.98	< 0.50	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethene,1,1-		< 0.79	< 0.20	< 0.79	< 0.20	< 0.52	< 0.13	< 0.79	< 0.20	< 0.79	< 0.20	< 1.98	< 0.50	< 0.79	< 0.20	7.9	2.0	4.0	1.0	3.9	0.99	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Dichloroethylene, cis-1,2-		< 0.79	< 0.20	< 0.79	< 0.20	< 0.37	< 0.094	< 0.79	< 0.20	< 0.79	< 0.20	< 2.02	< 0.50	< 0.79	< 0.20	3.3	0.83	1.3	0.33	1.2	0.31	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 2.0	< 0.50	< 0.79	< 0.20
Tetrachloroethane,1,1,2,2-		< 1.4	< 0.20	< 1.4	< 0.20	< 0.82	< 0.12	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 0.95	< 0.14	< 1.4	< 0.20	4.1	0.61	4.36	0.643	< 1.4	< 0.20	186	27.5	83.4	12.3	85.4	12.6	11	1.6	26 J+	3.8 J+	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Trichloroethane,1,1,1- (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 0.76	< 0.14	< 1.1	< 0.20	< 1.1	< 0.20	< 2.72	< 0.50	< 1.1	< 0.20	2.1	0.38	0.82 J	0.15 J	0.71 J	0.13 J	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 0.70	< 0.13	< 1.1	< 0.20	1.3	0.24	< 2.68	< 0.50	< 1.1	< 0.20	37	6.8	10	1.9	11	2.1	1.7	0.32	3.0 J+	0.56 J+	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m³ = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. The samples collected in August 2009, November 2009, February 2010, November 2010, March 2011, and May 2015 were collected over a 24 hour period.

7 NT = Not Tested.

Qualifying Notes:

J The reported result is below the laboratory reporting limit and is estimated.

J+ The reported result is estimated.

Table 5-2. Chemical Testing Results - Capuano Center Indoor and Outdoor Air
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
Capuano Center
150 Glen Street
Somerville, Massachusetts

	Sample Location:	Room 146 (continued)																									
	Sample ID:	150 GLEN-RM 146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146	
	Sample Date:	5/17/07		7/30/07		9/10/07		10/8/07		10/14/07		11/15/07		12/13/07		1/21/08		2/19/08		2/22/08		3/17/08		4/21/08		8/18/08		11/24/08	
	Units:	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv
Analyte	**Method**																												
Volatile Organic Compounds (VOCs)	TO-15																												
Carbon tetrachloride		< 1.3	< 0.20	0.62 J	0.099 J	0.82 J	0.13 J	< 1.3	< 0.20	0.58 J	0.092 J	0.69 J	0.11 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.62 J	0.098 J	< 1.3	< 0.20	0.75 J	0.12 J	0.60 J	0.096 J	0.63 J	0.10 J
Dichloroethane,1,1-		< 0.81	< 0.20	< 0.81 J+	< 0.20 J+	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethane,1,2-		< 0.81	< 0.20	< 0.81 J+	< 0.20 J+	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	0.49 J	0.12 J	< 0.81	< 0.20
Dichloroethene,1,1-		< 0.79	< 0.20	< 0.79 J+	< 0.20 J+	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Dichloroethylene, cis-1,2-		< 0.79	< 0.20	< 0.79 J+	< 0.20 J+	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Tetrachloroethane,1,1,2,2-		< 1.4	< 0.20	< 1.4 +	< 0.20 J+	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	1.0 J	0.15 J	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Trichloroethane,1,1,1- (TCA)		< 1.1	< 0.20	< 1.1 J+	< 0.20 J+	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1 J+	< 0.20 J+	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m³ = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. The samples collected in August 2009, November 2009, February 2010, November 2010, March 2011, and May 2015 were collected over a 24 hour period.
7 NT = Not Tested.

Qualifying Notes:
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.

Table 5-2. Chemical Testing Results - Capuano Center Indoor and Outdoor Air
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
Capuano Center
150 Glen Street
Somerville, Massachusetts

	Sample Location:	Room 146 (continued)														Outside of School by Room 126 Window						Outside of School by Day Care Window					
	Sample ID:	150GLEN-RM146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146		150 GLEN-0-1A		150 GLEN-0-1B		150 GLEN-0-1A		150 GLEN-0-2A		150 GLEN-0-2B		150 GLEN-0-2A	
	Sample Date:	3/2/09		8/27/09		11/11/09		2/19/10		11/11/10		3/17/11		5/23/15		12/27/06		12/28/06		1/6/07		12/27/06		12/28/06		1/6/07	
	Units:	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv
Analyte	**Method**																										
Volatile Organic Compounds (VOCs)	TO-15																										
Carbon tetrachloride		< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	NT	NT	NT	NT	NT	NT	< 1.3	< 0.20	< 1.3	< 0.20	0.52 J J+	0.083 J J+	1.1 J	0.17 J	< 1.3	< 0.20	0.52 J J+	0.082 J J+
Dichloroethane,1,1-		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.53	< 0.13	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethane,1,2-		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	NT	NT	NT	NT	NT	NT	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethene,1,1-		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.52	< 0.13	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Dichloroethylene, cis-1,2-		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.37	< 0.094	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Tetrachloroethane,1,1,2,2-		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 0.82	< 0.12	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 0.95	< 0.14	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Trichloroethane,1,1,1- (TCA)		< 1.1	< 0.20	0.93 J	0.17 J	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 0.76	< 0.14	< 1.1	< 0.20	< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 0.70	< 0.13	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m^3 = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. The samples collected in August 2009, November 2009, February 2010, November 2010, March 2011, and May 2015 were collected over a 24 hour period.
7 NT = Not Tested.

Qualifying Notes:
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.

Table 5-2. Chemical Testing Results - Capuano Center Indoor and Outdoor Air
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
Capuano Center
150 Glen Street
Somerville, Massachusetts

	Sample Location:	Downwind on Roof																					
	Sample ID:	150 GLEN-ROOF B		150 GLEN-ROOF B		150GLEN-ROOF		150 GLEN-ROOF		150 GLEN-ROOF		150GLEN-ROOF		150GLEN-ROOF		150GLEN-ROOF		150GLEN-ROOF		150GLEN-ROOF		150GLEN-ROOF		150GLEN-ROOF	
	Sample Date:	2/8/07		2/8/07		3/8/07		4/20/07		5/17/07		8/9/07		9/10/07		10/14/07		11/14/07		12/17/07		1/21/08		2/19/08	
	Units:	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv
Analyte	**Method**																								
Volatile Organic Compounds (VOCs)	TO-15																								
Carbon tetrachloride		< 1.3	< 1.3	< 0.20	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.69 J	0.11 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20
Dichloroethane,1,1-		< 0.81	< 0.81	< 0.20	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethane,1,2-		< 0.81	< 0.81	< 0.20	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethene,1,1-		< 0.79	< 0.79	< 0.20	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Dichloroethylene, cis-1,2-		< 0.79	< 0.79	< 0.20	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Tetrachloroethane,1,1,2,2-		< 1.4	< 1.4	< 0.20	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 1.4	< 0.20	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	1.2 J	0.18 J	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Trichloroethane,1,1,1- (TCA)		< 1.2	< 1.2	< 0.21	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21
Trichloroethylene (TCE)		< 1.1	< 1.1	< 0.20	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

General Notes:
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m^3 = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. The samples collected in August 2009, November 2009, February 2010, November 2010, March 2011, and May 2015 were collected over a 24 hour period.
7 NT = Not Tested.

Qualifying Notes:
J The reported result is below the laboratory reporting limit and is estimated.
J+ The reported result is estimated.

Table 5-2. Chemical Testing Results - Capuano Center Indoor and Outdoor Air
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
Capuano Center
150 Glen Street
Somerville, Massachusetts

	Sample Location:	Downwind on Roof (cont)											
	Sample ID:	150GLEN-ROOF		150GLEN-ROOF		150GLEN-ROOF		150GLEN-ROOF		150GLEN-ROOF		150GLEN-ROOF	
	Sample Date:	3/17/08		4/21/08		8/18/08		11/24/08		8/27/09		11/11/09	
	Units:	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv
Analyte	**Method**												
Volatile Organic Compounds (VOCs)	TO-15												
Carbon tetrachloride		< 1.3	< 0.20	0.69 J	0.11 J	0.63 J	0.10 J	0.63 J	0.10 J	< 1.3	< 0.20	< 1.3	< 0.20
Dichloroethane,1,1-		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethane,1,2-		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethene,1,1-		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Dichloroethylene, cis-1,2-		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Tetrachloroethane,1,1,2,2-		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Trichloroethane,1,1,1- (TCA)		< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m^3 = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. The samples collected in August 2009, November 2009, February 2010, November 2010, March 2011, and May 2015 were collected over a 24 hour period.

7 NT = Not Tested.

Qualifying Notes:

J The reported result is below the laboratory reporting limit and is estimated.

J+ The reported result is estimated.

Table 6-1. Exposure Pathway Mitigation Measure (EPMM) Status
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Property Address	EPMM Design Option	Date Completed or Last Modified	Date of Last Indoor Air Monitoring	Construction Details												
				Ventilation Fan(s) (Model No.) [a]	Number of Sub-Slab Vapor Extraction Points (SSDS)	Sub-slab Vapor Barrier - HDPE Liner	Sub-Slab Ventilation System - Geocomposite	Sub-Slab Vapor Trench	Foundation Wall Ventilation System - Geocomposite	New Basement Slab Installed	Crawlspace Vapor Barrier	Epoxy Vapor Barrier - Floor	Epoxy Vapor Barrier - Foundation Walls	Telemetry Installed (if necessary)	Reason Telemetry not Installed (if applicable)	AUL Recorded (Yes/No)
91-93 Franklin Street	3	March, 2009	3/1/2012	-	-	Yes	Yes	-	-	Yes	-	Yes	Yes	-	-	Yes
95 Franklin Street	2/1 [b]	May, 2011	5/16/2013	GP-501	-	-	-	Yes	-	-	Yes	Yes	Yes	Yes	-	No
95R Franklin Street	2	December, 2007	3/8/2010	-	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-	-	Yes
150 Glen Street	1	April, 2015	5/23/2015	GP-501 (3)	18	-	-	-	-	-	-	-	-	Yes	-	No
163 Glen Street	2	July, 2018	11/27/2019	-	-	Yes	-	Yes	-	Yes	-	-	-	-	-	No
166-168 Glen Street	3	November, 2010	3/1/2012	-	-	Yes	Yes	-	-	Yes	Yes	Yes	Yes	-	-	Yes
9 Knowlton Street	1	January, 2010	5/21/2007	GP-501	5	-	-	-	-	-	-	-	-	No	Refused access	Yes
13 Knowlton Street	1	January, 2010	11/21/2019	GP-501	4	-	-	-	-	-	-	-	-	Yes	-	Yes
17 Knowlton Street	3	March, 2009	3/7/2012	-	-	Yes	Yes	-	-	Yes	-	Yes	Yes	-	-	Yes
31-33 Knowlton Street	1	February, 2008	3/19/2010	HS-5000	7	-	-	-	-	-	-	-	-	Yes	-	No
32 Knowlton Street	3	May, 2009	3/8/2011	-	-	-	-	-	-	-	-	-	-	-	-	Yes
34 Knowlton Street	3	June, 2014	4/27/2015	-	-	Yes	-	-	-	Yes	-	-	-	-	-	Yes
35-37 Knowlton Street	3/1 [b]	April, 2010	3/11/2011	GP-501	-	Yes	Yes	-	-	Yes	-	Yes	Yes	Yes	-	No
4 Morton Street	3	November, 2008	3/20/2012	-	-	Yes	Yes	-	-	Yes	-	Yes	Yes	-	-	No
10 Morton Street	3	March, 2009	3/5/2011	-	-	Yes	Yes	-	-	Yes	-	Yes	Yes	-	-	Yes
11 Morton Street	2	November, 2008	2/17/2016	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-	-	Yes
12 Morton Street	3	March, 2008	11/19/2010	-	-	Yes	Yes	-	-	Yes	-	Yes	Yes	-	-	Yes
13 Morton Street	1	October, 2008	9/17/2014	GP-501	5	-	-	-	-	-	-	-	-	Yes	-	No
18 Morton Street	1	July, 2007	2/24/2011	GP-501	5	-	-	-	-	-	-	-	-	Yes	-	No
19-19A Morton Street	3	August, 2009	3/1/2012	-	-	-	-	-	-	-	-	-	-	-	-	Yes
23 Tufts Street	1	May, 2007	2/25/2010	GP-501	1	-	-	-	-	-	-	-	-	Yes	-	No
27 Tufts Street	3/1 [b]	May, 2011	5/23/2013	GP-501	-	Yes	Yes	-	-	Yes	Yes	Yes	Yes	Yes	-	No
50 Tufts Street	1	August, 2007	3/11/2015	Regenerative Blower	22	-	-	-	-	-	-	Yes	-	Yes	-	No
60 Tufts Street	1	April, 2009	4/25/2019	Regenerative Blower	14	-	-	-	-	-	-	-	-	Yes	-	No

General Notes:
1. NS = Not sampled.
2. - = Not Applicable.

Footnotes:
(a) Ventilation fans manufactured by Radon Away.
(b) An Option 2 or 3 EPMM was initially installed at these properties; however, a fan was added to the EPMM to improve performance. Therefore, these EPMMs consist of Option 1 with Option 2 or 3 EPMM elements.

Table 6-2. Indoor Air Sampling and EPMM Monitoring - June 16, 2019 through December 15, 2019
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
Residential and Commercial Properties
Somerville, Massachusetts

Property	Property Type	Indoor Air Sampling[1]	EPMM Inspection[3]	Indoor Air Sampling Rationale
163 Glen Street	Residential	11/27/19	NA	
13 Knowlton Street	Residential	11/22/19	NA	SSDS shutdown testing

General Notes:

1. EPMM = Exposure Pathway Mitigation Measure.
2. See Appendix D for Air Sampling Checklists.
3. See Section 4 for a description of EPMM Inspection activities. 60 Tufts Street EPMM is inspected quarterly; see Section 5.
4. NA = No inspection was performed during this reporting period.
5 SSDS = Sub-slab depressurization system.

Table 7-1. Summary of SSDS Monitoring Events - 60 Tufts Street
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Monitoring Date	Monitoring Event per RMR Report Period	Type of Monitoring Event	SSDS Field Parameters Measured	Analytical Samples Collected (Yes/No)?
7/10/2019	1	SSDS Quarterly Monitoring	-Pressure readings and VOC concentrations at system influent/effluent and blower. -System flow rate.	No
10/17/2019	2	SSDS Quarterly Monitoring	-Pressure readings and VOC concentrations at system influent/effluent and blower. -System flow rate.	No

General Notes:
1. SSDS = Sub-Slab Depressurization System.
2. RMR = Remedial Monitoring Report.
3. VOC = Volatile Organic Compound.
4. VOC measurements collected with a ppm-RAE calibrated to 100 ppm isobutylene gas.
5. Pressure readings collected using a Dwyer 475-000-FM manometer.

Table 8-1. Summary of SSDS Monitoring Events - 50 Tufts Street
Phase V Status Report No. 17 and Remedial Monitoring Report No. 32
50 Tufts Street
Somerville, Massachusetts

Monitoring Date	Monitoring Event per RMR Report Period	Type of Monitoring Event	SSDS Field Parameters Measured	Analytical Samples Collected (Yes/No)?
7/10/2019	1	SSDS Quarterly Monitoring	-Pressure readings and VOC concentrations at the combined influent, and effluent pipes. -Pressure readings and VOC concentrations at carbon tanks. -System flow rate.	No
8/22/2019	2	SSDS Quarterly Monitoring	-VOC concentrations at the combined influent, and effluent pipes. -VOC concentrations at carbon tanks.	No
9/23/2019	3	SSDS Monthly Monitoring	-VOC concentrations at the combined influent, and effluent pipes. -VOC concentrations at carbon tanks.	No
10/17/2019	4	SSDS Quarterly Monitoring	-Pressure readings and VOC concentrations at the combined influent, and effluent pipes. -Pressure readings and VOC concentrations at carbon tanks. -System flow rate.	No
11/22/2019	5	SSDS Monthly Monitoring	-VOC concentrations at the combined influent, and effluent pipes. -VOC concentrations at carbon tanks.	No

General Notes:
1. SSDS = Sub-Slab Depressurization System.
2. RMR = Remedial Monitoring Report.
3. VOC = Volatile Organic Compound.
4. VFD = Variable Flow Drive.
5. SVT/SVE = Soil Vapor Temporary Point/Soil Vapor Extraction.
6. VOC measurements collected with a ppm-RAE calibrated to 100 parts per million (ppm) with 10.6V lamp.
7. Pressure readings collected using a Dwyer 475-000-FM manometer.

Table 9-1. Groundwater Elevations
Phase V Status Report No. 16 and Remedial Monitoring Report No. 31
50 Tufts Street
Somerville, Massachusetts

		Gauging Date:	5/15/2006		5/16/2006		5/23/2006		5/31/2006		7/24/2006		8/1/2006		8/3/2006	
Monitoring Well ID	Well Screen Interval (ft bgs)	Elevation of Measuring Point (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)
MW-1	unknown	25.90	9.69	16.21	9.53	16.37	10.9	15	11.39	14.51	--	--	--	--	--	--
MW-2	unknown	25.38	8.99	16.39	10.36	15.02	Dry	Dry	Dry	Dry	--	--	--	--	--	--
MW-3	unknown	25.31	8.88	16.43	9.32	15.99	11.16	14.15	12.71	12.6	--	--	--	--	--	--
MW-101	9-19	26.75	--	--	10.56	16.19	11.53	15.22	12.1	14.65	12.33	14.42	12.51	14.24	13.47	13.28
MW-102	6-16	18.89	--	--	6.62	12.27	6.86	12.03	7.44	11.45	7.93	10.96	8.16	10.73	9.11	9.78
MW-103	6-16	19.47	--	--	9.5	9.97	10.37	9.1	10.74	8.73	11.15	8.32	11.31	8.16	12.24	7.23
MW-104	5-15	17.67	--	--	--	--	7.93	9.74	8.89	8.78	9.06	8.61	9.39	8.28	10.29	7.38
MW-105	19-29	38.84	--	--	19.49	19.35	20.21	18.63	20.7	18.14	21.18	17.66	21.43	17.41	22.41	16.43
MW-106	9 - 19	26.33	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-107	2 - 12	14.63	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-108	2 - 12	12.74	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-109	3 - 13	24.12	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-110	3 - 13	15.58	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-111	4 - 14	18.95	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-112	3 - 10	18.16	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-112a	4-19	17.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-113	10-20	26.16	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-114	7-17	29.43	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-115	10-25	27.15	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-116	5-15	13.45	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-117S	5 - 20	21.94	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-117T	35 - 45	21.87	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-117D	60 - 70	21.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-118S	3 - 14	15.52	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-118T	39.5 - 49.5	15.30	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-118D	70 - 80	15.15	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-119S	5 - 20	11.74	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-119T	42 - 47	11.67	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-120S	5 - 20	12.54	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-120D	28 - 38	12.45	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-121S	5 - 20	12.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-121D	32 - 47	12.81	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-122	4 - 16	16.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GEO-1	5 - 20	25.88	9.69	16.19	9.9	15.98	10.92	14.96	11.36	14.52	--	--	--	--	--	--
GEO-2	5 - 20	26.54	9.76	16.78	--	--	11.38	15.16	11.91	14.63	--	--	--	--	--	--
GEO-3	5 - 20	25.64	10.43	15.21	9.59	16.05	9.87	15.77	10.67	14.97	11.67	13.97	11.85	13.79	12.84	12.8
GEO-4	4 - 19	21.69	--	--	7.79	13.9	9.85	11.84	10.78	10.91	11.25	10.44	11.45	10.24	12.43	9.26
GEO-5	5 - 20	20.14	--	--	6.78	13.36	9.08	11.06	9.96	10.18	10.29	9.85	10.56	9.58	11.51	8.63
GEO-6	5 - 20	17.62	--	--	5.66	11.96	7.39	10.23	8.23	9.39	8.43	9.19	8.73	8.89	9.64	7.98
SH-1	9 - 14	29.55	10.15	19.4	11.4	18.15	Dry	Dry	Dry	Dry	--	--	--	--	--	--
SH-2	7 - 14	29.64	5.71	23.93	7.86	21.78	12.07	17.57	12.22	17.42	--	--	--	--	--	--
SH-3	8 - 13	29.66	7.54	22.12	8.56	21.1	12.73	16.93	12.96	16.7	--	--	--	--	--	--
SH-4	11 - 16	29.63	13.53	16.1	13.48	16.15	14.48	15.15	15.02	14.61	--	--	--	--	--	--
SH-5	8 - 13	29.63	Dry	Dry	--	--	12.99	16.64	13.03	16.6	--	--	--	--	--	--
SH-MW1	10 - 30	24.02	6.72	17.3	--	--	11.44	12.58	12.18	11.84	--	--	--	--	--	--
SH-MW2	10 - 25	24.27	9.33	14.94	--	--	12.05	12.22	12.69	11.58	--	--	--	--	--	--
SH-MW3	10 - 24	22.31	7.8	14.51	--	--	10.26	12.05	11.03	11.28	--	--	--	--	--	--
MW201	11-21	27.51	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW202	10.5-20.5	27.82	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW203	6-18	21.80	--	--	--	--	--	--	--	--	--	--	--	--	--	--

General Notes:
1. ft = feet.
2. bgs = below ground surface.
3. ID = identification.
4 GW = groundwater.
5. NAVD = North American Vertical Datum of 1988.
6. The top of the PVC riser was used as the measuring point for depth to groundwater.
7. "--" = Well not yet installed, abandoned, or not measured.

Table 9-1. Groundwater Elevations
Phase V Status Report No. 16 and Remedial Monitoring Report No. 31
50 Tufts Street
Somerville, Massachusetts

		Gauging Date:	8/16/2006		9/29/2006		10/4/2006		11/14/2006		12/12/2006		1/16/2007		2/12/2007	
Monitoring Well ID	Well Screen Interval (ft bgs)	Elevation of Measuring Point (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)
MW-1	unknown	25.90	11.9	14	--	--	11.88	14.02	--	--	--	--	11.6	14.3	--	--
MW-2	unknown	25.38	Dry	Dry	--	--	--	--	--	--	--	--	Destroyed	Destroyed	--	--
MW-3	unknown	25.31	13.73	11.58	--	--	13.75	11.56	--	--	--	--	13.05	12.26	--	--
MW-101	9-19	26.75	12.78	13.97	12.85	13.9	12.76	13.99	12.25	14.5	12.57	14.18	12.4	14.35	12.81	13.94
MW-102	6-16	18.89	8.51	10.38	8.68	10.21	8.52	10.37	7.64	11.25	8.01	10.88	7.72	11.17	8.52	10.37
MW-103	6-16	19.47	11.72	7.75	11.98	7.49	11.92	7.55	11	8.47	11.21	8.26	10.88	8.59	11.74	7.73
MW-104	5-15	17.67	9.87	7.8	9.95	7.72	9.92	7.75	--	--	--	--	8.73	8.94	--	--
MW-105	19-29	38.84	21.91	16.93	22.27	16.57	22.18	16.66	21.16	17.68	21.76	17.08	21.46	17.38	22.03	16.81
MW-106	9 - 19	26.33	--	--	--	--	--	--	--	--	--	--	--	--	12.27	14.06
MW-107	2 - 12	14.63	--	--	--	--	--	--	--	--	--	--	--	--	4.54	10.09
MW-108	2 - 12	12.74	--	--	--	--	--	--	--	--	--	--	--	--	4.93	7.81
MW-109	3 - 13	24.12	--	--	--	--	--	--	--	--	--	--	--	--	12.07	12.05
MW-110	3 - 13	15.58	--	--	--	--	--	--	--	--	--	--	--	--	5.99	9.59
MW-111	4 - 14	18.95	--	--	--	--	--	--	--	--	--	--	--	--	11.38	7.57
MW-112	3 - 10	18.16	--	--	--	--	--	--	--	--	--	--	--	--	Dry	Dry
MW-112a	4-19	17.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-113	10-20	26.16	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-114	7-17	29.43	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-115	10-25	27.15	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-116	5-15	13.45	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-117S	5 - 20	21.94	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-117T	35 - 45	21.87	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-117D	60 - 70	21.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-118S	3 - 14	15.52	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-118T	39.5 - 49.5	15.30	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-118D	70 - 80	15.15	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-119S	5 - 20	11.74	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-119T	42 - 47	11.67	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-120S	5 - 20	12.54	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-120D	28 - 38	12.45	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-121S	5 - 20	12.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-121D	32 - 47	12.81	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-122	4 - 16	16.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GEO-1	5 - 20	25.88	11.82	14.06	--	--	11.85	14.03	--	--	--	--	11.55	14.33	--	--
GEO-2	5 - 20	26.54	12.51	14.03	--	--	12.51	14.03	--	--	--	--	12.2	14.34	--	--
GEO-3	5 - 20	25.64	12.25	13.39	12.37	2.84	12.35	13.29	11.63	14.01	11.72	13.92	11.58	14.06	12.21	13.43
GEO-4	4 - 19	21.69	11.9	9.79	12.09	9.6	12.04	9.65	10.58	11.11	11.31	10.38	10.77	10.92	11.83	9.86
GEO-5	5 - 20	20.14	10.99	9.15	11.21	8.93	11.15	8.99	9.47	10.67	10.48	9.66	9.73	10.41	11.02	9.12
GEO-6	5 - 20	17.62	9.25	8.37	9.41	8.21	9.26	8.36	7.65	9.97	8.82	8.8	8.11	9.51	9.3	8.32
SH-1	9 - 14	29.55	Dry	Dry	--	--	Dry	Dry	--	--	--	--	Dry	Dry	--	--
SH-2	7 - 14	29.64	11.98	17.66	--	--	12	17.64	--	--	--	--	Dry	Dry	--	--
SH-3	8 - 13	29.66	Dry	Dry	--	--	Dry	Dry	--	--	--	--	Dry	Dry	--	--
SH-4	11 - 16	29.63	15.09	14.54	--	--	15.1	14.53	--	--	--	--	Dry	Dry	--	--
SH-5	8 - 13	29.63	Dry	Dry	--	--	Dry	Dry	--	--	--	--	Dry	Dry	--	--
SH-MW1	10 - 30	24.02	13.09	10.93	--	--	13.17	10.85	--	--	--	--	12.21	11.81	--	--
SH-MW2	10 - 25	24.27	13.38	10.89	--	--	13.41	10.86	--	--	--	--	12.73	11.54	--	--
SH-MW3	10 - 24	22.31	13	9.31	--	--	12.04	10.27	--	--	--	--	11.04	11.27	--	--
MW201	11-21	27.51	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW202	10.5-20.5	27.82	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW203	6-18	21.80	--	--	--	--	--	--	--	--	--	--	--	--	--	--

General Notes:
1. ft = feet.
2. bgs = below ground surface.
3. ID = identification.
4 GW = groundwater.
5. NAVD = North American Vertical Datum of 1988.
6. The top of the PVC riser was used as the measuring point for depth to groundwater.
7. "--" = Well not yet installed, abandoned, or not measured.

Table 9-1. Groundwater Elevations
Phase V Status Report No. 16 and Remedial Monitoring Report No. 31
50 Tufts Street
Somerville, Massachusetts

		Gauging Date:	3/14/2007		4/12/2007		5/29/2007		6/26/2007		7/16/2007		8/22/2007		9/27/2007		10/23/2007	
Monitoring Well ID	Well Screen Interval (ft bgs)	Elevation of Measuring Point (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)
MW-1	unknown	25.90	--	--	11.39	14.51	11.41	14.49	11.8	14.1	12.04	13.86	--	--	12.26	13.64	12.07	13.83
MW-2	unknown	25.38	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	unknown	25.31	--	--	12.57	12.74	14.89	10.42	13.6	11.71	13.94	11.37	--	--	14.34	10.97	13.94	11.37
MW-101	9-19	26.75	12.34	14.41	12.11	14.64	12.17	14.58	12.62	14.13	12.85	13.9	13.03	13.72	13.17	13.58	12.91	13.84
MW-102	6-16	18.89	--	--	7.46	11.43	6.72	12.17	8.36	10.53	8.74	10.15	9.08	9.81	9.35	9.54	8.97	9.92
MW-103	6-16	19.47	11	8.47	10.66	8.81	10.81	8.66	11.47	8.0	11.92	7.55	12.3	7.17	12.63	6.84	--	--
MW-104	5-15	17.67	--	--	8.75	8.92	--	--	9.62	8.05	10.09	7.58	10.36	7.31	10.61	7.06	10.31	7.36
MW-105	19-29	38.84	21.56	17.28	20.88	17.96	20.86	17.98	21.55	17.29	22.13	16.71	22.79	16.05	23.18	15.66	22.96	15.88
MW-106	9 - 19	26.33	12.91	13.42	11.65	14.68	11.69	14.64	12.07	14.26	12.33	14	12.48	13.85	12.61	13.72	12.39	13.94
MW-107	2 - 12	14.63	4.5	10.13	4.49	10.14	4.46	10.17	4.48	10.15	4.52	10.11	4.75	9.88	4.51	10.12	4.47	10.16
MW-108	2 - 12	12.74	4.02	8.72	9.91	2.83	4.25	8.49	5.06	7.68	6.59	6.15	6.25	6.49	6.28	6.46	5.86	6.88
MW-109	3 - 13	24.12	11.27	12.85	10.27	13.85	10.73	13.39	11.76	12.36	12.24	11.88	Dry	Dry	Dry	Dry	Dry	Dry
MW-110	3 - 13	15.58	1.46	14.12	1.04	14.54	2.56	13.02	6.57	9.01	7.17	8.41	7.86	7.72	8.37	7.21	6.92	8.66
MW-111	4 - 14	18.95	10.62	8.33	10.65	8.3	10.68	8.27	11.11	7.84	11.54	7.41	11.96	6.99	12.34	6.61	11.99	6.96
MW-112	3 - 10	18.16	8.01	10.15	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW-112a	4-19	17.78	12.76	5.02	12.76	5.02	12.67	5.11	12.81	4.97	12.88	4.9	--	--	12.95	4.83	12.8	4.98
MW-113	10-20	26.16	11.66	14.5	11.44	14.72	11.51	14.65	11.99	14.17	12.22	13.94	12.43	13.73	12.58	13.58	12.3	13.86
MW-114	7-17	29.43	12.67	16.76	11.27	18.16	11.53	17.9	12.88	16.55	15.57	13.86	14.24	15.19	14.84	14.59	14.66	14.77
MW-115	10-25	27.15	17.19	9.96	16.21	10.94	16.63	10.52	17.42	9.73	17.97	9.18	18.38	8.77	18.81	8.34	18.37	8.78
MW-116	5-15	13.45	8.78	4.67	8.34	5.11	8.65	4.8	8.76	4.69	--	--	8.85	4.6	8.91	4.54	8.83	4.62
MW-117S	5 - 20	21.94	--	--	--	--	--	--	--	--	15.27	6.67	15.7	6.24	16.03	5.91	16.2	5.74
MW-117T	35 - 45	21.87	--	--	--	--	--	--	--	--	15.95	5.92	16.38	5.49	16.81	5.06	16.91	4.96
MW-117D	60 - 70	21.78	--	--	--	--	--	--	--	--	15.87	5.91	16.26	5.52	16.69	5.09	16.77	5.01
MW-118S	3 - 14	15.52	--	--	--	--	--	--	--	--	11.64	3.88	9.84	5.68	10.2	5.32	9.42	6.1
MW-118T	39.5 - 49.5	15.30	--	--	--	--	--	--	--	--	10.36	4.94	10.51	4.79	10.74	4.56	10.68	4.62
MW-118D	70 - 80	15.15	--	--	--	--	--	--	--	--	10.18	4.97	10.32	4.83	10.55	4.6	10.49	4.66
MW-119S	5 - 20	11.74	--	--	--	--	--	--	--	--	--	--	4.91	6.83	4.99	6.75	4.93	6.81
MW-119T	42 - 47	11.67	--	--	--	--	--	--	--	--	--	--	6.45	5.22	6.8	4.87	6.72	4.95
MW-120S	5 - 20	12.54	--	--	--	--	--	--	--	--	--	--	5.25	7.29	5.35	7.19	4.71	7.83
MW-120D	28 - 38	12.45	--	--	--	--	--	--	--	--	--	--	--	--	4.21	8.24	3.94	8.51
MW-121S	5 - 20	12.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.36	5.08
MW-121D	32 - 47	12.81	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.92	4.89
MW-122	4 - 16	16.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GEO-1	5 - 20	25.88	--	--	11.36	14.52	11.38	14.5	11.73	14.15	11.93	13.95	12.1	13.78	12.21	13.67	11.98	13.9
GEO-2	5 - 20	26.54	--	--	11.97	14.57	11.99	14.55	12.4	14.14	13.6	12.94	12.81	13.73	12.91	13.63	12.63	13.91
GEO-3	5 - 20	25.64	11.49	14.15	10.76	14.88	11.04	14.6	11.94	13.7	---	---	12.7	12.94	12.94	12.7	12.61	13.03
GEO-4	4 - 19	21.69	11.03	10.66	10.51	11.18	10.87	10.82	11.64	10.05	12.09	9.6	12.55	9.14	13.02	8.67	12.64	9.05
GEO-5	5 - 20	20.14	10.15	9.99	9.7	10.44	10.01	10.13	10.79	9.35	11.25	8.89	11.74	8.4	11.18	8.96	11.72	8.42
GEO-6	5 - 20	17.62	8.54	9.08	8.32	9.3	8.25	9.37	8.9	8.72	9.5	8.12	9.92	7.7	10.22	7.4	9.96	7.66
SH-1	9 - 14	29.55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-2	7 - 14	29.64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-3	8 - 13	29.66	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-4	11 - 16	29.63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-5	8 - 13	29.63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-MW1	10 - 30	24.02	--	--	12.01	12.01	12.26	11.76	---	---	---	---	--	--	--	--	--	--
SH-MW2	10 - 25	24.27	--	--	12.61	11.66	12.74	11.53	13.25	11.02	13.48	10.79	13.72	10.55	14.04	10.23	13.68	10.59
SH-MW3	10 - 24	22.31	--	--	10.81	11.5	--	--	11.72	10.59	12.08	10.23	12.43	9.88	12.79	9.52	12.41	9.9
MW201	11-21	27.51	--	--	--	--	--	--	--	--	--	--	13.71	13.8	13.83	13.68	13.58	13.93
MW202	10.5-20.5	27.82	--	--	--	--	--	--	--	--	--	--	13.99	13.83	14.08	13.74	13.88	13.94
MW203	6-18	21.80	--	--	--	--	--	--	--	--	--	--	14.05	7.75	14.39	7.41	13.86	7.94

General Notes:
1. ft = feet.
2. bgs = below ground surface.
3. ID = identification.
4 GW = groundwater.
5. NAVD = North American Vertical Datum of 1988.
6. The top of the PVC riser was used as the measuring point for depth to groundwater.
7. "--" = Well not yet installed, abandoned, or not measured.

Table 9-1. Groundwater Elevations
Phase V Status Report No. 16 and Remedial Monitoring Report No. 31
50 Tufts Street
Somerville, Massachusetts

		Gauging Date:	11/30/2007		1/9/2008		2/26/2008		3/18/2008		4/15/2008		5/19/2008		7/14/08		8/22/08	
Monitoring Well ID	Well Screen Interval (ft bgs)	Elevation of Measuring Point (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)
MW-1	unknown	25.90	11.95	13.95	--	--	--	--	--	--	11.42	14.48	11.57	14.33	--	--	--	--
MW-2	unknown	25.38	--	--	--	--	--	--	--	--	--	---	--	--	--	--	--	--
MW-3	unknown	25.31	13.75	11.56	12.86	12.45	12.05	13.26	12.37	12.94	12.81	12.5	12.99	---	--	--	--	--
MW-101	9-19	26.75	13.82	12.93	12.11	14.64	--	--	11.85	14.9	12.02	14.73	12.26	14.49	13.11	13.64	--	--
MW-102	6-16	18.89	8.01	10.88	7.46	11.43	7.29	11.6	7.17	11.72	8.57	10.32	7.9	10.99	9.51	9.38	8.00	10.89
MW-103	6-16	19.47	12.18	7.29	10.74	8.73	10.51	8.96	10.5	8.97	10.82	8.65	11.11	8.36	12.17	7.30	11.17	8.30
MW-104	5-15	17.67	10.07	7.6	8.86	8.81	8.61	9.06	8.48	9.19	9.84	7.83	9.25	8.42	9.67	8.00	9.06	8.61
MW-105	19-29	38.84	22.74	16.1	21.39	17.45	20.79	18.05	20.41	18.43	20.91	17.93	21.24	17.6	22.02	16.82	21.40	17.44
MW-106	9 - 19	26.33	12.27	14.06	11.71	14.62	11.51	14.82	11.38	14.95	12.54	13.79	11.72	14.61	11.68	14.65	11.73	14.60
MW-107	2 - 12	14.63	4.44	10.19	4.35	10.28	--	--	4.46	10.17	5.58	9.05	---	---	4.52	10.11	4.41	10.22
MW-108	2 - 12	12.74	4.74	8.0	3.71	9.03	4.61	8.13	3.68	9.06	3.91	8.83	3.99	8.75	5.16	7.58	4.44	8.30
MW-109	3 - 13	24.12	12.78	11.34	10.64	13.48	10.06	14.06	10.02	14.1	11.64	12.48	11.29	12.83	11.87	12.25	11.18	12.94
MW-110	3 - 13	15.58	3.34	12.24	--	--	0.79	14.79	1.12	14.46	1.57	14.01	2.5	13.08	--	--	3.59	11.99
MW-111	4 - 14	18.95	12.27	6.68	10.51	8.44	10.5	8.45	10.54	8.41	16.64	2.31	10.71	8.24	12.23	6.72	10.73	8.22
MW-112	3 - 10	18.16	Dry	Dry	Dry	Dry	Dry	Dry	--	--	----	---	---	---	--	--	8.33	9.83
MW-112a	4-19	17.78	--	--	12.43	5.35	12.52	5.26	12.61	5.17	13.71	4.07	12.77	5.01	13.56	4.22	12.93	4.85
MW-113	10-20	26.16	12.6	13.56	11.5	14.66	11.28	14.88	11.15	15.01	11.39	14.77	11.62	14.54	12.01	14.15	11.63	14.53
MW-114	7-17	29.43	14.31	15.12	12.08	17.35	11.11	18.32	10.75	18.68	12.42	17.01	12.3	17.13	13.24	16.19	12.21	17.22
MW-115	10-25	27.15	18.24	8.91	16.18	10.97	15.85	11.3	15.86	11.29	16.45	10.7	16.72	10.43	18.49	8.66	16.78	10.37
MW-116	5-15	13.45	--	--	8.6	4.85	8.68	4.77	8.77	4.68	8.85	4.6	8.88	4.57	9.09	4.36	9.01	4.44
MW-117S	5 - 20	21.94	15.95	5.99	13.97	7.97	13.52	8.42	13.5	8.44	14.22	7.72	14.6	7.34	14.99	6.95	13.90	8.04
MW-117T	35 - 45	21.87	16.58	5.29	14.58	7.29	13.97	7.9	13.9	7.97	14.67	7.2	14.94	6.93	15.68	6.19	15.27	6.60
MW-117D	60 - 70	21.78	16.44	5.34	14.46	7.32	13.86	7.92	13.81	7.97	14.51	7.27	14.89	6.89	15.61	6.17	14.67	7.11
MW-118S	3 - 14	15.52	9.4	6.12	8.55	6.97	8.34	7.18	8.4	7.12	10	5.52	9.38	6.14	9.64	5.88	8.48	7.04
MW-118T	39.5 - 49.5	15.30	10.5	4.8	9.93	5.37	9.49	5.81	9.53	5.77	9.83	5.47	9.94	5.36	10.35	4.95	9.92	5.38
MW-118D	70 - 80	15.15	10.25	4.9	9.55	5.6	9.3	5.85	9.35	5.8	9.64	5.51	9.8	5.35	10.11	5.04	9.70	5.45
MW-119S	5 - 20	11.74	4.85	6.89	4.63	7.11	4.6	7.14	4.56	7.18	4.91	6.83	4.92	6.82	4.94	6.80	6.08	5.66
MW-119T	42 - 47	11.67	6.57	5.1	5.82	5.85	5.63	6.04	5.78	5.89	5.97	5.7	6.1	5.57	6.52	5.15	4.52	7.15
MW-120S	5 - 20	12.54	4.62	7.92	3.51	9.03	4.06	8.48	4.0	8.54	5.1	7.44	4.57	7.97	5.18	7.36	4.61	7.93
MW-120D	28 - 38	12.45	3.48	8.97	3.17	9.28	2.96	9.49	3.11	9.34	3.26	9.19	3.44	9.01	3.82	8.63	2.90	9.55
MW-121S	5 - 20	12.44	7.41	5.03	7.24	5.2	7.36	5.08	7.41	5.03	9.39	3.05	7.29	5.15	9.21	3.23	7.70	4.74
MW-121D	32 - 47	12.81	7.75	5.06	6.95	5.86	6.83	5.98	6.91	5.9	7.31	5.5	7.27	5.54	7.64	5.17	7.30	5.51
MW-122	4 - 16	16.42	--	--	--	--	12.98	3.44	13	3.42	13.03	3.39	12.99	3.43	13.15	3.27	13.17	3.25
GEO-1	5 - 20	25.88	11.91	13.97	11.41	14.47	11.22	14.66	--	--	11.25	14.63	11.4	14.48	12.32	13.56	12.00	13.88
GEO-2	5 - 20	26.54	12.57	13.97	12.02	14.52	11.77	14.77	--	--	12.81	13.73	12.01	14.53	11.73	14.81	11.41	15.13
GEO-3	5 - 20	25.64	12.54	13.1	10.99	14.65	10.71	14.93	--	--	10.97	14.67	---	---	12.05	13.59	11.57	14.07
GEO-4	4 - 19	21.69	12.47	9.22	11.72	9.97	10.36	11.33	10.34	11.35	11.46	10.23	11.13	10.56	11.60	10.09	11.16	10.53
GEO-5	5 - 20	20.14	12.62	7.52	9.92	10.22	9.42	10.72	9.52	10.62	10.8	9.34	10.21	9.93	10.89	9.25	10.28	9.86
GEO-6	5 - 20	17.62	9.96	7.66	8.21	9.41	7.78	9.84	7.86	9.76	9.11	8.51	8.51	9.11	9.20	8.42	7.91	9.71
SH-1	9 - 14	29.55	--	--	--	--	--	--	--	--	---	---	---	---	--	--	--	--
SH-2	7 - 14	29.64	--	--	--	--	--	--	--	--	---	---	---	---	--	--	--	--
SH-3	8 - 13	29.66	--	--	--	--	--	--	--	--	---	---	---	---	--	--	--	--
SH-4	11 - 16	29.63	--	--	--	--	--	--	--	--	---	---	---	---	--	--	--	--
SH-5	8 - 13	29.63	--	--	--	--	--	--	--	--	---	---	---	---	--	--	--	--
SH-MW1	10 - 30	24.02	--	--	--	--	--	--	--	--	---	---	---	---	--	--	--	--
SH-MW2	10 - 25	24.27	13.85	10.42	12.77	11.5	12.49	11.78	12.46	11.81	13.62	10.65	12.89	11.38	11.83	12.44	12.92	11.35
SH-MW3	10 - 24	22.31	12.05	10.26	11.55	10.76	10.68	11.63	10.65	11.66	11.83	10.48	11.21	11.1	13.27	9.04	11.30	11.01
MW201	11-21	27.51	13.5	14.01	12.98	14.53	12.76	14.75	12.64	14.87	12.85	14.66	13.94	13.57	13.31	14.2	13.00	14.51
MW202	10.5-20.5	27.82	13.81	14.01	13.41	14.41	13.22	14.6	13.12	14.7	12.73	15.09	13.37	14.45	13.68	14.14	13.41	14.41
MW203	6-18	21.80	13.61	8.19	12.86	8.94	12.03	9.77	12	9.8	13.31	8.49	12.68	9.12	13.15	8.65	12.55	9.25

General Notes:
1. ft = feet.
2. bgs = below ground surface.
3. ID = identification.
4 GW = groundwater.
5. NAVD = North American Vertical Datum of 1988.
6. The top of the PVC riser was used as the measuring point for depth to groundwater.
7. "--" = Well not yet installed, abandoned, or not measured.

Table 9-1. Groundwater Elevations
Phase V Status Report No. 16 and Remedial Monitoring Report No. 31
50 Tufts Street
Somerville, Massachusetts

		Gauging Date:	10/20/08		1/13/09		4/13/09		7/14/09		10/14/09		4/12/10		10/27/10		4/20/11	
Monitoring Well ID	Well Screen Interval (ft bgs)	Elevation of Measuring Point (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)
MW-1	unknown	25.90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-2	unknown	25.38	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	unknown	25.31	--	--	12.49	12.82	12.28	13.03	12.92	12.39	13.19	12.12	--	--	--	--	--	--
MW-101	9-19	26.75	12.61	14.14	12.07	14.68	11.91	14.84	12.2	14.55	12.37	14.38	11.61	15.14	--	--	11.73	15.02
MW-102	6-16	18.89	8.49	10.4	7.50	11.39	7.35	11.54	7.85	11.04	7.99	10.9	7.11	11.78	--	--	7.04	11.85
MW-103	6-16	19.47	11.87	7.6	10.73	8.74	10.57	8.9	11.07	8.4	11.34	8.13	10.47	9.00	--	--	10.39	9.08
MW-104	5-15	17.67	9.72	7.95	8.71	8.96	7.98	9.69	8.84	8.83	9.38	8.29	8.52	9.15	--	--	9.28	8.39
MW-105	19-29	38.84	21.8	17.04	20.9	17.94	20.65	18.19	21.4	17.44	21.8	17.04	19.84	19.00	--	--	20.63	18.21
MW-106	9 - 19	26.33	11.64	14.69	11.6	14.73	11.49	14.84	overflowing	--	overflowing	--	11.16	15.17	--	--	11.39	14.94
MW-107	2 - 12	14.63	4.49	10.14	4.5	10.13	4.47	10.16	overflowing	--	overflowing	--	4.31	10.32	--	--	4.43	10.2
MW-108	2 - 12	12.74	4.71	8.03	3.4	9.34	3.73	9.01	4.37	8.37	4.66	8.08	3.86	8.88	--	--	3.56	9.18
MW-109	3 - 13	24.12	11.73	12.39	10.43	13.69	10.4	13.72	11.11	13.01	--	--	9.88	14.24	--	--	10.10	14.02
MW-110	3 - 13	15.58	--	--	1.45	14.13	1.1	14.48	2.88	12.7	2.42	13.16	1.39	14.19	--	--	1.67	13.91
MW-111	4 - 14	18.95	11.37	7.58	10.55	8.4	10.56	8.39	10.67	8.28	10.41	8.54	10.57	8.38	--	--	10.62	8.33
MW-112	3 - 10	18.16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-112a	4-19	17.78	13.01	4.77	12.78	5.0	12.63	5.15	12.78	5.0	12.58	5.2	12.62	5.16	12.31	5.47	12.14	5.64
MW-113	10-20	26.16	11.99	14.17	11.41	14.75	11.23	14.93	11.56	14.6	11.73	14.43	10.93	15.23	--	--	11.00	15.16
MW-114	7-17	29.43	13.19	16.24	11.25	18.18	10.97	18.46	12.04	17.39	--	--	10.24	19.19	--	--	10.46	18.97
MW-115	10-25	27.15	17.8	9.35	16.35	10.8	15.4	11.75	16.58	10.57	17.4	9.75	16.43	10.72	--	--	16.22	10.93
MW-116	5-15	13.45	--	--	8.94	--	8.87	4.58	8.97	4.48	8.76	4.69	8.85	4.6	--	--	8.32	5.13
MW-117S	5 - 20	21.94	14.67	7.27	14.02	7.92	14.38	7.56	14.66	7.28	14.75	7.19	13.32	8.62	--	--	14.06	7.88
MW-117T	35 - 45	21.87	15.26	6.61	14.45	7.42	14.43	7.44	15.03	6.84	15.26	6.61	13.56	8.31	--	--	14.18	7.69
MW-117D	60 - 70	21.78	15.27	6.51	14.3	7.48	14.26	7.52	14.89	6.89	15.13	6.65	13.48	8.3	--	--	14.01	7.77
MW-118S	3 - 14	15.52	9.05	6.47	8.41	7.11	8.7	6.82	9.43	6.09	9.01	6.51	8.31	7.21	--	--	8.55	6.97
MW-118T	39.5 - 49.5	15.30	10.19	5.11	9.73	5.57	9.64	5.66	9.92	5.38	9.99	5.31	9.49	5.81	--	--	9.33	5.97
MW-118D	70 - 80	15.15	9.99	5.16	9.54	5.61	9.47	5.68	9.74	5.41	9.73	5.42	9.29	5.86	--	--	9.15	6.00
MW-119S	5 - 20	11.74	4.08	7.66	4.41	7.33	4.21	7.53	4.47	7.27	4.33	7.41	4.33	7.41	--	--	4.08	7.66
MW-119T	42 - 47	11.67	6.78	4.89	5.85	5.82	5.8	5.87	6.04	5.63	6.01	5.66	5.68	5.99	--	--	5.55	6.12
MW-120S	5 - 20	12.54	4.01	8.53	4.03	8.51	3.85	8.69	4.31	8.23	3.58	8.96	3.98	8.56	--	--	3.65	8.89
MW-120D	28 - 38	12.45	3.32	9.13	3.18	9.27	3.11	9.34	3.31	9.14	3.29	9.16	3.04	9.41	--	--	3.18	9.27
MW-121S	5 - 20	12.44	9.01	3.43	7.68	4.76	7.57	4.87	7.62	4.82	7.71	4.73	7.67	4.77	--	--	7.12	5.32
MW-121D	32 - 47	12.81	9.64	3.17	7.07	5.74	6.98	5.83	7.27	5.54	7.37	5.44	6.87	5.94	--	--	6.77	6.04
MW-122	4 - 16	16.42	11.42	5.0	13.15	3.27	13.16	3.26	13.14	3.28	13.12	3.3	13.09	3.33	13.04	3.38	13.06	3.36
GEO-1	5 - 20	25.88	12.14	13.74	11.26	14.62	11.07	14.81	11.31	14.57	11.54	14.34	17.06	8.82	--	--	10.92	14.96
GEO-2	5 - 20	26.54	11.58	14.96	11.88	14.66	11.7	14.84	11.99	14.55	12.25	14.29	11.41	15.13	--	--	10.55	15.99
GEO-3	5 - 20	25.64	--	--	--	--	10.86	14.78	11.48	14.16	11.79	13.85	10.27	15.37	--	--	10.62	15.02
GEO-4	4 - 19	21.69	11.89	9.8	10.56	11.13	10.21	11.48	11.00	10.69	--	--	10.26	11.43	--	--	--	--
GEO-5	5 - 20	20.14	11.79	8.35	9.70	10.44	9.30	10.84	10.08	10.06	10.44	9.7	9.48	10.66	--	--	9.18	10.96
GEO-6	5 - 20	17.62	10.95	6.67	8.02	9.6	7.48	10.14	8.18	9.44	8.66	8.96	7.62	10	--	--	7.63	9.99
SH-1	9 - 14	29.55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-2	7 - 14	29.64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-3	8 - 13	29.66	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-4	11 - 16	29.63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-5	8 - 13	29.63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-MW1	10 - 30	24.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-MW2	10 - 25	24.27	12.01	12.26	12.63	11.64	12.33	11.94	12.77	11.5	13.01	11.26	10.61	13.66	--	--	12.29	11.98
SH-MW3	10 - 24	22.31	12.49	9.82	10.87	11.44	10.52	11.79	11.12	11.19	11.46	10.85	12.39	9.92	--	--	10.46	11.85
MW201	11-21	27.51	14.64	12.87	13.27	14.24	12.69	14.82	12.94	14.57	13.09	14.42	12.42	15.09	--	--	12.57	14.94
MW202	10.5-20.5	27.82	13.29	14.53	12.82	15	13.15	14.67	13.33	14.49	13.55	14.27	12.94	14.88	--	--	13.02	14.80
MW203	6-18	21.80	13.02	8.78	12.25	9.55	11.5	10.3	12.29	9.51	12.77	9.03	12.03	9.77	--	--	11.83	9.97

General Notes:
1. ft = feet.
2. bgs = below ground surface.
3. ID = identification.
4 GW = groundwater.
5. NAVD = North American Vertical Datum of 1988.
6. The top of the PVC riser was used as the measuring point for depth to groundwater.
7. "--" = Well not yet installed, abandoned, or not measured.

Table 9-1. Groundwater Elevations
Phase V Status Report No. 16 and Remedial Monitoring Report No. 31
50 Tufts Street
Somerville, Massachusetts

		Gauging Date:	11/16/11		4/16/12		11/12/12		4/23/13		11/18/13		4/30/14		6/11/14		11/18/14	
Monitoring Well ID	Well Screen Interval (ft bgs)	Elevation of Measuring Point (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)
MW-1	unknown	25.90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-2	unknown	25.38	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	unknown	25.31	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-101	9-19	26.75	--	--	12.71	14.04	--	--	12.41	14.34	--	--	12.03	14.72	--	--	--	--
MW-102	6-16	18.89	--	--	8.53	10.36	--	--	8.01	10.88	--	--	7.68	11.21	--	--	--	--
MW-103	6-16	19.47	--	--	11.79	7.68	--	--	11.22	8.25	--	--	10.96	8.51	--	--	--	--
MW-104	5-15	17.67	--	--	10.24	7.43	--	--	9.64	8.03	--	--	9.5	8.17	--	--	--	--
MW-105	19-29	38.84	--	--	--	--	--	--	21.31	17.53	--	--	--	--	--	--	--	--
MW-106	9 - 19	26.33	--	--	--	--	--	--	--	--	--	--	11.71	14.62	--	--	--	--
MW-107	2 - 12	14.63	--	--	--	--	--	--	--	--	--	--	3.61	11.02	--	--	--	--
MW-108	2 - 12	12.74	--	--	4.72	8.02	--	--	4.34	8.4	--	--	4.09	8.65	--	--	--	--
MW-109	3 - 13	24.12	--	--	12.15	11.97	--	--	11.37	12.75	--	--	10.79	13.33	--	--	--	--
MW-110	3 - 13	15.58	--	--	--	--	--	--	--	--	--	--	2.61	12.97	--	--	--	--
MW-111	4 - 14	18.95	--	--	11.6	7.35	--	--	11.01	7.94	--	--	10.96	7.99	--	--	--	--
MW-112	3 - 10	18.16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-112a	4-19	17.78	12.30	5.48	12.70	5.08	12.72	5.06	12.80	4.98	13.11	4.67	--	--	12.86	4.92	12.39	5.39
MW-113	10-20	26.16	--	--	12.11	14.05	--	--	11.73	14.43	--	--	11.42	14.74	--	--	--	--
MW-114	7-17	29.43	--	--	13.70	15.73	--	--	12.24	17.19	--	--	12.05	17.38	--	--	--	--
MW-115	10-25	27.15	--	--	18.51	8.64	--	--	17.76	9.39	--	--	17.51	9.64	--	--	--	--
MW-116	5-15	13.45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-117S	5 - 20	21.94	--	--	9.06	12.88	--	--	14.39	7.55	--	--	13.63	8.31	--	--	--	--
MW-117T	35 - 45	21.87	--	--	15.58	6.29	--	--	15.19	6.68	--	--	14.78	7.09	--	--	--	--
MW-117D	60 - 70	21.78	--	--	15.81	5.97	--	--	15.09	6.69	--	--	14.71	7.07	--	--	--	--
MW-118S	3 - 14	15.52	--	--	9.66	5.86	--	--	9.41	6.11	--	--	9.01	6.51	--	--	--	--
MW-118T	39.5 - 49.5	15.30	--	--	10.30	5	--	--	10.12	5.18	--	--	9.94	5.36	--	--	--	--
MW-118D	70 - 80	15.15	--	--	10.11	5.04	10.03	5.12	10.00	5.15	10.73	4.42	9.82	5.33	--	--	10.20	4.95
MW-119S	5 - 20	11.74	--	--	5.14	6.6	--	--	4.70	7.04	--	--	4.31	7.43	--	--	--	--
MW-119T	42 - 47	11.67	--	--	6.50	5.17	--	--	6.25	5.42	--	--	6.11	5.56	--	--	--	--
MW-120S	5 - 20	12.54	--	--	4.78	7.76	--	--	4.26	8.28	--	--	4.19	8.35	--	--	--	--
MW-120D	28 - 38	12.45	--	--	3.87	8.58	--	--	3.40	9.05	--	--	4.41	8.04	--	--	--	--
MW-121S	5 - 20	12.44	--	--	7.26	5.18	--	--	6.93	5.51	--	--	5.95	6.49	--	--	--	--
MW-121D	32 - 47	12.81	--	--	7.69	5.12	7.55	5.26	7.41	5.4	8.13	4.68	7.35	5.46	--	--	7.27	5.54
MW-122	4 - 16	16.42	13.16	3.26	13.1	3.32	13.16	3.26	13.14	3.28	13.12	3.3	13.12	3.30	--	--	13.04	3.38
GEO-1	5 - 20	25.88	--	--	--	--	--	--	11.50	14.38	--	--	11.19	14.69	--	--	--	--
GEO-2	5 - 20	26.54	--	--	11.81	14.73	--	--	12.19	14.35	--	--	11.99	14.55	--	--	--	--
GEO-3	5 - 20	25.64	--	--	12.21	13.43	--	--	11.57	14.07	--	--	11.10	14.54	--	--	--	--
GEO-4	4 - 19	21.69	--	--	11.98	9.71	--	--	11.29	10.4	--	--	11.09	10.6	--	--	--	--
GEO-5	5 - 20	20.14	--	--	11.18	8.96	--	--	10.45	9.69	--	--	10.25	9.89	--	--	--	--
GEO-6	5 - 20	17.62	--	--	9.54	8.08	--	--	8.56	9.06	--	--	8.30	9.32	--	--	--	--
SH-1	9 - 14	29.55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-2	7 - 14	29.64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-3	8 - 13	29.66	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-4	11 - 16	29.63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-5	8 - 13	29.63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-MW1	10 - 30	24.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-MW2	10 - 25	24.27	--	--	13.53	10.74	--	--	13.13	11.14	--	--	12.95	11.32	--	--	--	--
SH-MW3	10 - 24	22.31	--	--	12.00	10.31	--	--	11.43	10.88	--	--	11.23	11.08	--	--	--	--
MW201	11-21	27.51	--	--	13.43	14.08	--	--	13.15	14.36	--	--	12.97	14.54	--	--	--	--
MW202	10.5-20.5	27.82	--	--	--	--	--	--	13.54	14.28	--	--	13.32	14.50	--	--	--	--
MW203	6-18	21.80	--	--	13.85	7.95	--	--	13.15	8.65	--	--	12.92	8.88	--	--	--	--

General Notes:
1. ft = feet.
2. bgs = below ground surface.
3. ID = identification.
4 GW = groundwater.
5. NAVD = North American Vertical Datum of 1988.
6. The top of the PVC riser was used as the measuring point for depth to groundwater.
7. "--" = Well not yet installed, abandoned, or not measured.

Table 9-1. Groundwater Elevations
Phase V Status Report No. 16 and Remedial Monitoring Report No. 31
50 Tufts Street
Somerville, Massachusetts

		Gauging Date:	4/1/15		4/17/15		11/19/15		4/27/16		11/21/16		4/14/17		11/8/17		1/31/18	
Monitoring Well ID	Well Screen Interval (ft bgs)	Elevation of Measuring Point (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)
MW-1	unknown	25.90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-2	unknown	25.38	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	unknown	25.31	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-101	9-19	26.75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-102	6-16	18.89	6.99	11.9	--	--	--	--	8.02	10.87	--	--	--	--	--	--	7.94	10.95
MW-103	6-16	19.47	10.43	9.04	--	--	--	--	11.49	7.98	--	--	--	--	--	--	11.12	8.35
MW-104	5-15	17.67	8.04	9.63	--	--	--	--	10.63	7.04	--	--	9.05	8.62	--	--	11.99	5.68
MW-105	19-29	38.84	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-106	9 - 19	26.33	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-107	2 - 12	14.63	--	--	--	--	--	--	4.49	10.14	--	--	4.51	10.12	--	--	4.56	10.07
MW-108	2 - 12	12.74	3.31	9.43	--	--	--	--	4.11	8.63	--	--	3.78	8.96	--	--	4.02	8.72
MW-109	3 - 13	24.12	9.61	14.51	--	--	--	--	11.25	12.87	--	--	9.86	14.26	--	--	11.02	13.10
MW-110	3 - 13	15.58	0.60	14.98	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-111	4 - 14	18.95	10.80	8.15	--	--	--	--	11.50	7.45	--	--	Dry	Dry	--	--	Dry	Dry
MW-112	3 - 10	18.16	--	--	--	--	--	--	--	--	--	--	6.44	11.72	--	--	--	--
MW-112a	4-19	17.78	--	--	12.86	4.92	--	--	11.14	6.64	13.12	4.66	12.88	4.90	15.32	2.46	12.85	4.93
MW-113	10-20	26.16	10.64	15.52	--	--	--	--	11.65	14.51	--	--	10.83	15.33	--	--	13.90	12.26
MW-114	7-17	29.43	10.06	19.37	--	--	--	--	12.45	16.98	--	--	10.70	18.73	--	--	12.89	16.54
MW-115	10-25	27.15	16.50	10.65	--	--	--	--	18.23	8.92	--	--	17.33	9.82	--	--	18.17	8.98
MW-116	5-15	13.45	--	--	--	--	--	--	9.34	4.11	--	--	9.18	4.27	--	--	9.22	4.23
MW-117S	5 - 20	21.94	9.66	12.28	--	--	--	--	14.09	7.85	--	--	12.49	9.45	--	--	16.65	5.29
MW-117T	35 - 45	21.87	13.95	7.92	--	--	--	--	15.59	6.28	--	--	14.36	7.51	--	--	17.76	4.11
MW-117D	60 - 70	21.78	13.88	7.90	--	--	--	--	--	--	--	--	12.93	8.85	--	--	12.11	9.67
MW-118S	3 - 14	15.52	8.04	7.48	--	--	--	--	9.30	6.22	--	--	8.37	7.15	--	--	12.17	3.35
MW-118T	39.5 - 49.5	15.30	9.63	5.67	--	--	--	--	10.37	4.93	--	--	9.80	5.5	--	--	12.45	2.85
MW-118D	70 - 80	15.15	9.47	5.68	--	--	11.99	3.16	10.20	4.95	10.42	4.73	9.61	5.54	10.27	4.88	--	--
MW-119S	5 - 20	11.74	4.16	7.58	--	--	--	--	4.64	7.10	--	--	4.43	7.31	--	--	--	--
MW-119T	42 - 47	11.67	5.80	5.87	--	--	--	--	6.43	5.24	--	--	5.95	5.72	--	--	--	--
MW-120S	5 - 20	12.54	3.54	9.00	--	--	--	--	3.16	9.38	--	--	3.91	8.63	--	--	5.72	6.82
MW-120D	28 - 38	12.45	3.10	9.35	--	--	--	--	3.68	8.77	--	--	3.19	9.26	--	--	6.30	6.15
MW-121S	5 - 20	12.44	6.77	5.67	--	--	--	--	--	--	--	--	7.73	4.71	--	--	7.76	4.68
MW-121D	32 - 47	12.81	7.01	5.80	--	--	8.83	3.98	--	--	7.85	4.96	7.17	5.64	7.75	5.06	7.50	5.31
MW-122	4 - 16	16.42	13.15	3.27	--	--	13.23	3.19	13.19	3.23	13.21	3.21	13.18	3.24	13.17	3.25	13.19	3.23
GEO-1	5 - 20	25.88	10.69	15.19	--	--	--	--	11.39	14.49	--	--	10.75	15.13	--	--	--	--
GEO-2	5 - 20	26.54	11.34	15.20	--	--	--	--	12.18	14.36	--	--	11.51	15.03	--	--	--	--
GEO-3	5 - 20	25.64	9.92	15.72	--	--	--	--	--	--	--	--	10.25	15.39	--	--	11.40	14.24
GEO-4	4 - 19	21.69	10.17	11.52	--	--	--	--	11.61	10.08	--	--	10.59	11.1	--	--	11.20	10.49
GEO-5	5 - 20	20.14	9.29	10.85	--	--	--	--	10.94	9.20	--	--	9.81	10.33	--	--	10.44	9.70
GEO-6	5 - 20	17.62	7.84	9.78	--	--	--	--	9.72	7.90	--	--	8.42	9.2	--	--	9.12	8.50
SH-1	9 - 14	29.55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-2	7 - 14	29.64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-3	8 - 13	29.66	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-4	11 - 16	29.63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-5	8 - 13	29.63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-MW1	10 - 30	24.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-MW2	10 - 25	24.27	12.41	11.86	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-MW3	10 - 24	22.31	10.55	11.76	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW201	11-21	27.51	12.40	15.11	--	--	--	--	13.15	14.36	--	--	--	--	--	--	15.36	12.15
MW202	10.5-20.5	27.82	12.93	14.89	--	--	--	--	13.53	14.29	--	--	--	--	--	--	15.77	12.05
MW203	6-18	21.80	12.05	9.75	--	--	--	--	13.93	7.87	--	--	--	--	--	--	15.76	6.04

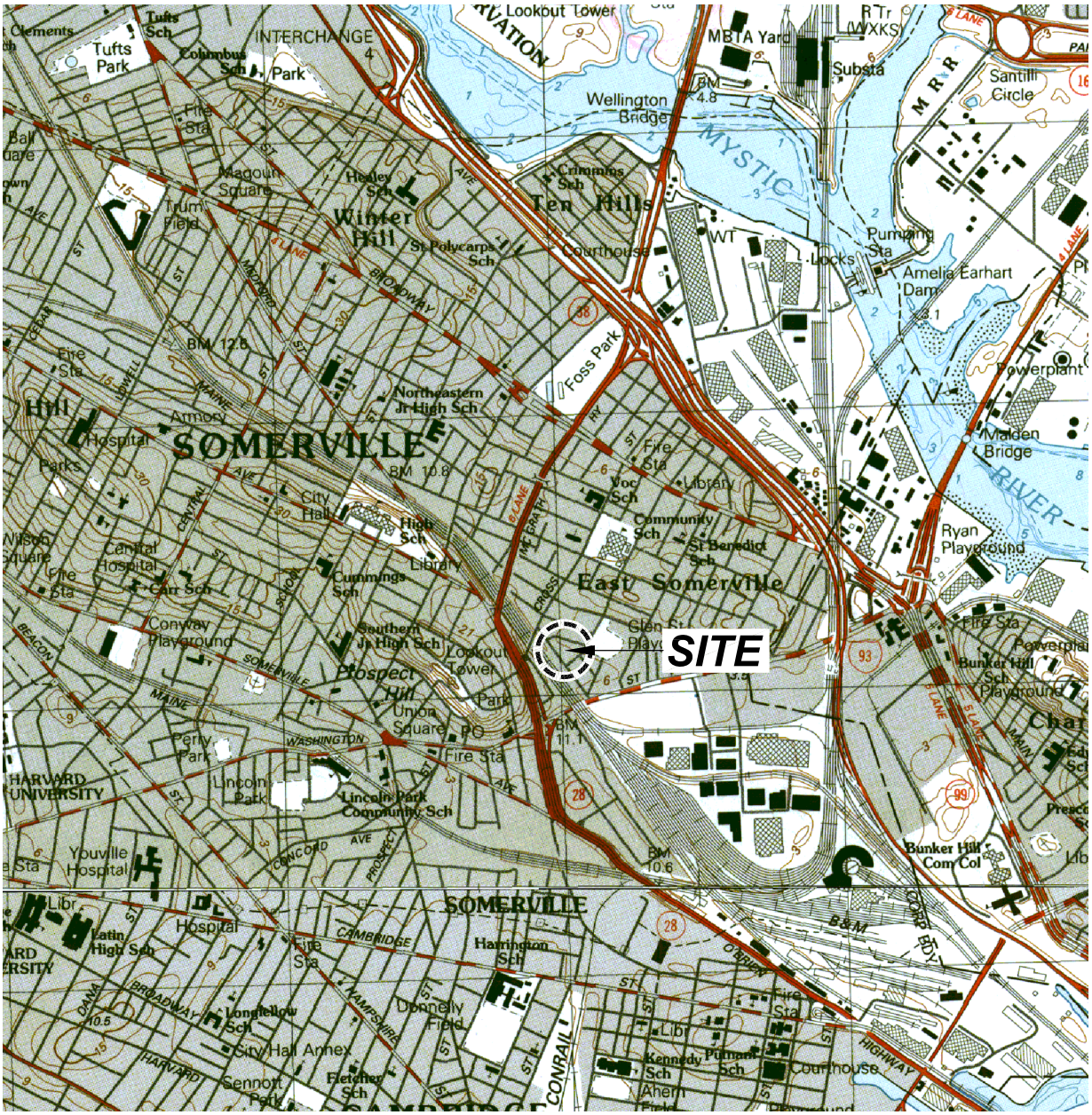
General Notes:
1. ft = feet.
2. bgs = below ground surface.
3. ID = identification.
4 GW = groundwater.
5. NAVD = North American Vertical Datum of 1988.
6. The top of the PVC riser was used as the measuring point for depth to groundwater.
7. "--" = Well not yet installed, abandoned, or not measured.

Table 9-1. Groundwater Elevations
Phase V Status Report No. 16 and Remedial Monitoring Report No. 31
50 Tufts Street
Somerville, Massachusetts

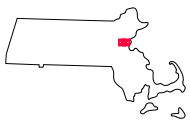
		Gauging Date:	4/2/18		11/15/18		4/15/19		11/22/19	
Monitoring Well ID	**Well Screen Interval (ft bgs)**	**Elevation of Measuring Point (ft NAVD)**	**Depth to GW (ft)**	**Elevation of GW (ft NAVD)**	**Depth to GW (ft)**	**Elevation of GW (ft NAVD)**	**Depth to GW (ft)**	**Elevation of GW (ft NAVD)**	**Depth to GW (ft)**	**Elevation of GW (ft NAVD)**
MW-1	unknown	25.90	--	--	--	--	--	--	--	--
MW-2	unknown	25.38	--	--	--	--	--	--	--	--
MW-3	unknown	25.31	--	--	--	--	--	--	--	--
MW-101	9-19	26.75	--	--	--	--	--	--	--	--
MW-102	6-16	18.89	7.58	11.31	--	--	7.21	11.68	--	--
MW-103	6-16	19.47	10.81	8.66	--	--	7.26	12.21	--	--
MW-104	5-15	17.67	9.21	8.46	--	--	--	--	--	--
MW-105	19-29	38.84	--	--	--	--	--	--	--	--
MW-106	9 - 19	26.33	--	--	--	--	--	--	--	--
MW-107	2 - 12	14.63	4.51	10.12	--	--	4.74	9.89	--	--
MW-108	2 - 12	12.74	4.05	8.69	--	--	3.95	8.79	--	--
MW-109	3 - 13	24.12	10.51	13.61	--	--	10.62	13.5	--	--
MW-110	3 - 13	15.58	--	--	--	--	--	--	--	--
MW-111	4 - 14	18.95	NF	NF	--	--	--	--	--	--
MW-112	3 - 10	18.16	--	--	--	--	5.05	13.11	--	--
MW-112a	4-19	17.78	--	--	13.09	4.69	12.3	5.48	13.00	4.78
MW-113	10-20	26.16	11.35	14.81	--	--	--	--	--	--
MW-114	7-17	29.43	11.29	18.14	--	--	--	--	--	--
MW-115	10-25	27.15	17.66	9.49	--	--	1696	-1668.85	--	--
MW-116	5-15	13.45	9.14	4.31	--	--	8.35	5.1	--	--
MW-117S	5 - 20	21.94	13.07	8.87	--	--	9.19	12.75	--	--
MW-117T	35 - 45	21.87	14.75	7.12	--	--	14.46	7.41	--	--
MW-117D	60 - 70	21.78	13.5	8.28	--	--	11.76	10.02	--	--
MW-118S	3 - 14	15.52	8.75	6.77	--	--	9.84	5.68	--	--
MW-118T	39.5 - 49.5	15.30	9.96	5.34	--	--	9.52	5.78	--	--
MW-118D	70 - 80	15.15	9.74	5.41	9.23	5.92	9.31	5.84	10.49	4.66
MW-119S	5 - 20	11.74	4.56	7.18	--	--	4.05	7.69	--	--
MW-119T	42 - 47	11.67	6.12	5.55	--	--	5.86	5.81	--	--
MW-120S	5 - 20	12.54	3.97	8.57	--	--	3.85	8.69	--	--
MW-120D	28 - 38	12.45	3.41	9.04	--	--	3.21	9.24	--	--
MW-121S	5 - 20	12.44	7.32	5.12	--	--	6.8	5.64	--	--
MW-121D	32 - 47	12.81	7.74	5.07	6.79	6.02	6.94	5.87	7.66	5.15
MW-122	4 - 16	16.42	13.13	3.29	13.17	3.25	12.81	3.61	13.15	3.27
GEO-1	5 - 20	25.88	11.11	14.77	--	--	11.1	14.78	--	--
GEO-2	5 - 20	26.54	11.83	14.71	--	--	12.98	13.56	--	--
GEO-3	5 - 20	25.64	10.79	14.85	--	--	11.06	14.58	--	--
GEO-4	4 - 19	21.69	11.20	10.49	--	--	10.72	10.97	--	--
GEO-5	5 - 20	20.14	10.2	9.94	--	--	7.55	12.59	--	--
GEO-6	5 - 20	17.62	8.67	8.95	--	--	8.23	9.39	--	--
SH-1	9 - 14	29.55	--	--	--	--	--	--	--	--
SH-2	7 - 14	29.64	--	--	--	--	--	--	--	--
SH-3	8 - 13	29.66	--	--	--	--	--	--	--	--
SH-4	11 - 16	29.63	--	--	--	--	--	--	--	--
SH-5	8 - 13	29.63	--	--	--	--	--	--	--	--
SH-MW1	10 - 30	24.02	--	--	--	--	--	--	--	--
SH-MW2	10 - 25	24.27	12.84	11.43	--	--	12.55	11.72	--	--
SH-MW3	10 - 24	22.31	--	--	--	--	--	--	--	--
MW201	11-21	27.51	13.34	14.17	--	--	12.92	14.59	--	--
MW202	10.5-20.5	27.82	12.86	14.96	--	--	13.3	14.52	--	--
MW203	6-18	21.80	12.98	8.82	--	--	--	--	--	--

General Notes:
1. ft = feet.
2. bgs = below ground surface.
3. ID = identification.
4 GW = groundwater.
5. NAVD = North American Vertical Datum of 1988.
6. The top of the PVC riser was used as the measuring point for depth to groundwater.
7. "--" = Well not yet installed, abandoned, or not measured.

Figures



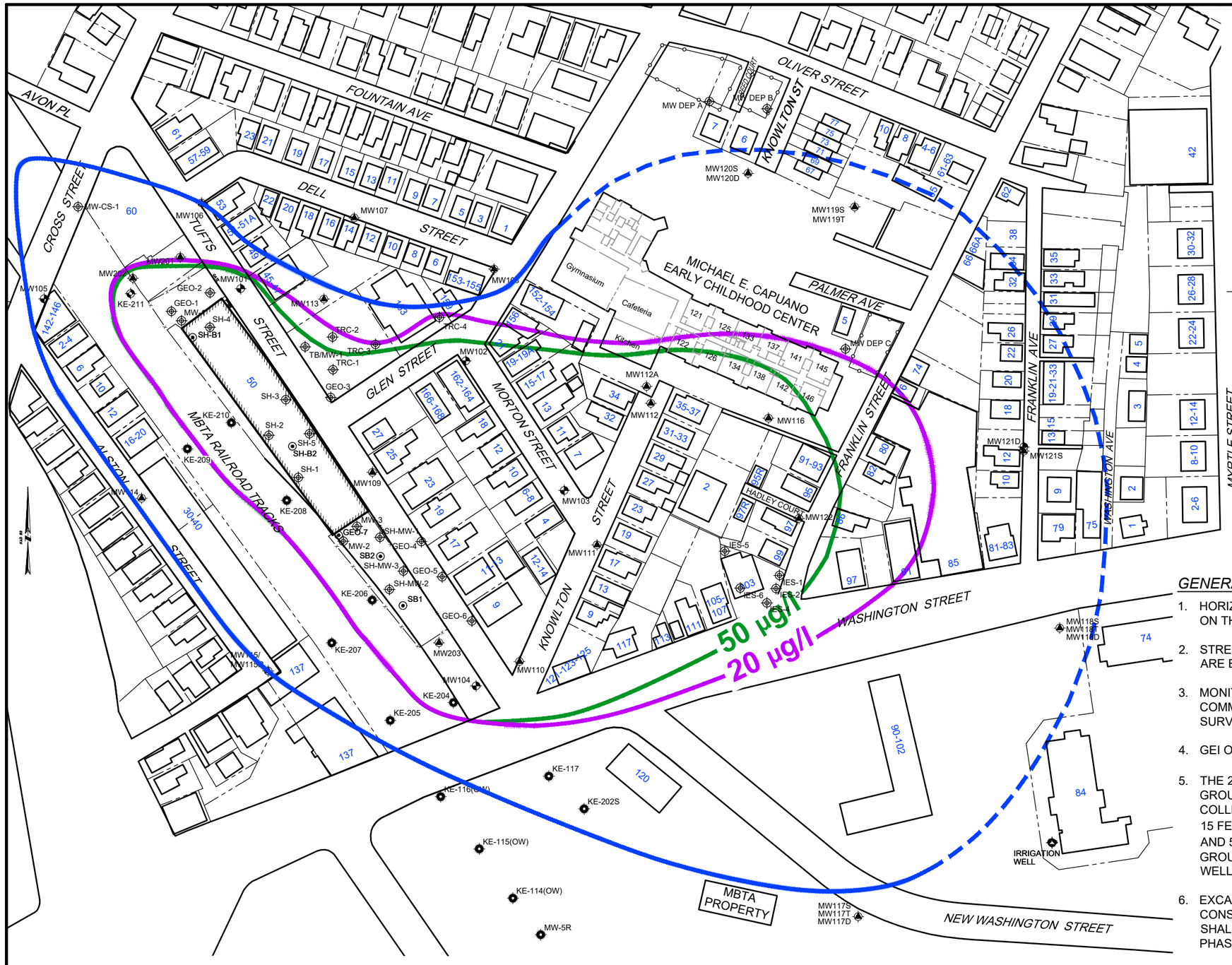
This Image provided by MassGIS is from U.S.G.S.
Topographic 7.5 X 15 Minute Series
Boston North, MA Quadrangle, 1985.
Datum is National Geodetic Vertical Datum of 1929 (NGVD29).
Contour Interval is 3 Meters.



MASSACHUSETTS
QUADRANGLE LOCATION

Phase V Status Report No. 17 and Remedial Monitoring Report No. 32 50 Tufts Street Somerville, Massachusetts	GEI Consultants	SITE LOCATION MAP
UniFirst Corporation Wilmington, Massachusetts	Project 04516-3	February 2020 Fig. 1-1

B:\Private\04516\#Drafting\04516-3\Phase V SR 16\045163 PhV SR16 Fig 1-1



LEGEND:

- BORING BY KLEINFELDER, MARCH 2014 AND APRIL 2014
- MONITORING WELL BY KLEINFELDER, SEPTEMBER 2012, MARCH 2014, AND APRIL 2014
- MONITORING WELL WITH SOIL VAPOR SAMPLE PORT INSTALLED BY GEI, JANUARY 2007 - JANUARY 2008
- MONITORING WELL INSTALLED BY GEI, MAY 2006
- MONITORING WELL INSTALLED BY OTHERS
- PREVIOUSLY INSTALLED IRRIGATION WELL
- CHAIN LINK FENCE
- 138 ROOM NUMBER AT CAPUANO SCHOOL
- BOUNDARY OF COMMUNITY GARDENS
- 84 STREET ADDRESS
- MBTA = MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
- DISPOSAL SITE BOUNDARY (DASHED WHERE INFERRED)
- EXTENT OF PCE CONCENTRATION IN SHALLOW GROUNDWATER GREATER THAN OR EQUAL TO 20 µg/l
- EXTENT OF PCE CONCENTRATION IN SHALLOW GROUNDWATER GREATER THAN OR EQUAL TO 50 µg/l
- µg/l = MICROGRAMS PER LITER

GENERAL NOTES:

1. HORIZONTAL CONTROL FOR THIS PLAN WAS ESTABLISHED BY GPS AND IS BASED ON THE NORTH AMERICAN DATUM OF 1983.
2. STREET AND PROPERTY LINES BASED ON SOMERVILLE ASSESSORS' MAPS AND ARE BEST FIT RELATIVE TO THE LOCATION OF THE 50 TUFTS ST. BUILDING.
3. MONITORING WELL LOCATIONS AND ELEVATIONS, AND CAPUANO CENTER COMMUNITY GARDEN LOCATIONS WERE ESTABLISHED BY ON THE GROUND SURVEYS BY BSC GROUP, INC. OR INFORMATION PROVIDED BY KLEINFELDER
4. GEI OBSERVED DECOMMISSIONING OF SH-MW1 AND SH-1 THROUGH SH-5 IN 2007.
5. THE 20 µg/l AND 50 µg/l BOUNDARY LINES ARE BASED ON SHALLOW GROUNDWATER ANALYTICAL RESULTS (0 TO 15 FEET BELOW GROUND SURFACE) COLLECTED THROUGH MAY 2017. KE-204 IS A WELL SCREENED GREATER THAN 15 FEET BELOW GROUND SURFACE, BUT HAS BEEN INCLUDED IN THE 20 µg/l AND 50 µg/l BOUNDARY LINES BECAUSE OF UNCERTAINTY ON THE SHALLOW GROUNDWATER CONCENTRATIONS WITHIN THE IMMEDIATE VICINITY OF THIS WELL.
6. EXCAVATION DEWATERING IN 2015/2016 ASSOCIATED WITH MBTA GLX CONSTRUCTION IN VICINITY OF KE-117 MAY HAVE TEMPORARILY ALTERED SHALLOW GROUNDWATER CONCENTRATIONS IN THAT AREA. SEE SECTION 7 OF PHASE V STATUS REPORT.

Phase V Status Report No. 17 and
Remedial Monitoring Report No. 32
50 Tufts Street Somerville, Massachusetts

UniFirst Corporation
Wilmington, Massachusetts

GEI Consultants

DISPOSAL SITE MAP
AND SITE BOUNDARY

Project 04516-3 | February 2020 | Fig. 1-2

B:\Private\04516\#Drafting\04516-3\Phase V SR 16\045163 PhV SR16 Fig 1-2

LEGEND

PCE CONCENTRATIONS

- Not Detected
- Less than RCS-1
- 0.65 Greater than RCS-1 (1 mg/kg) (Detected concentration presented in mg/kg)

DISPOSAL SITE BOUNDARY

0 80 160 320 Feet

Phase V Status Report No. 17 and
Remedial Monitoring Report No. 32
50 Tufts Street Somerville, Massachusetts

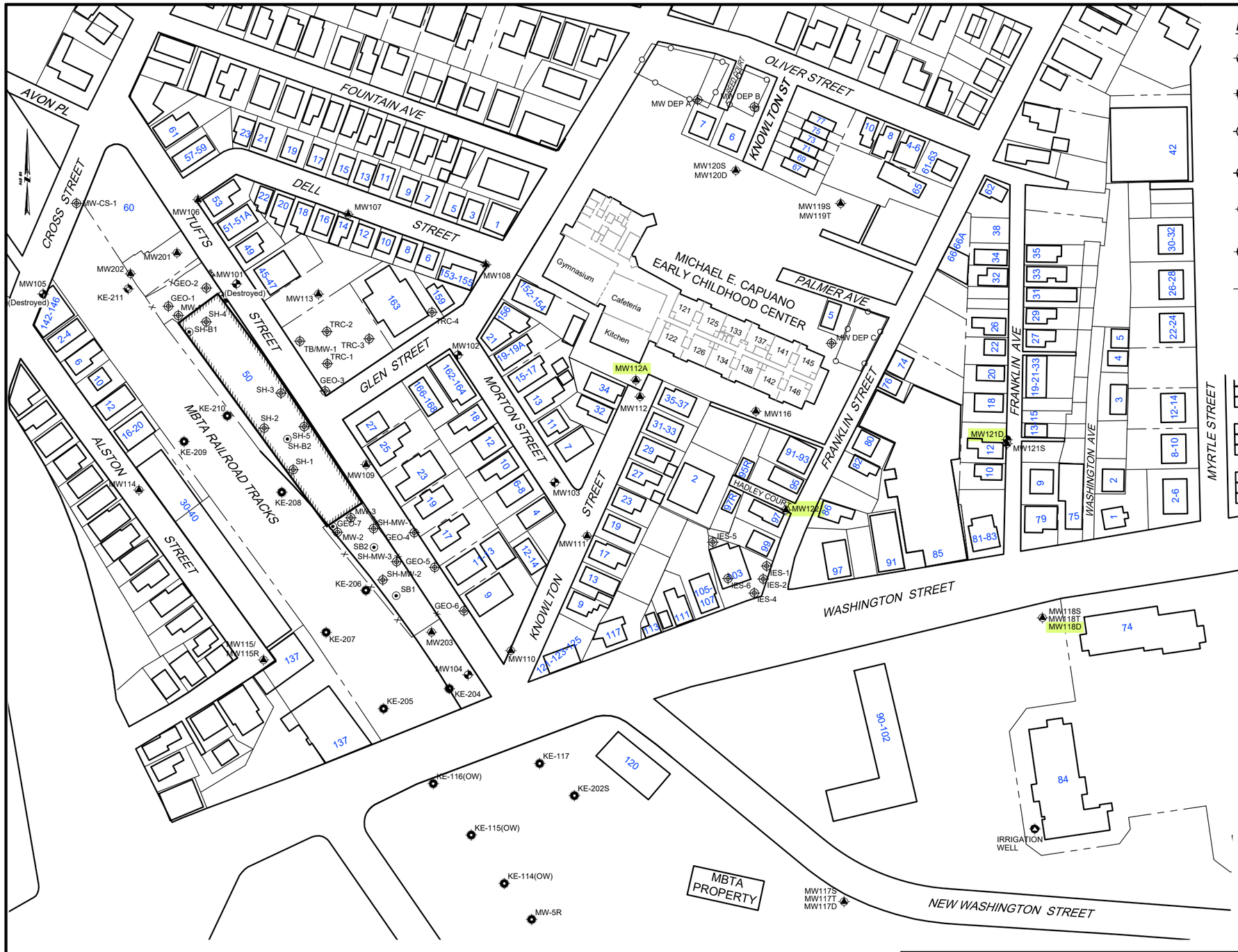
UniFirst Corporation
Wilmington, Massachusetts

GEI Consultants

KLEINFELDER SOIL DATA AND GLX PROJECT PRE-CHARACTERIZATION SAMPLES

Project 04516-3 | February 2020 | Fig. 2-1

B:\Private\04516\22.0 GLX Project\2019 GLX\2020 GLX Soil Management Eval\Soil Eval.mxd



0 150 300

SCALE, FEET

LEGEND:

- BORING BY KLEINFELDER, MARCH 2014 AND APRIL 2014
- MONITORING WELL BY KLEINFELDER, SEPTEMBER 2012, MARCH 2014, AND APRIL 2014
- MONITORING WELL WITH SOIL VAPOR SAMPLE PORT INSTALLED BY GEI, JANUARY 2007 - JANUARY 2008
- MONITORING WELL INSTALLED BY GEI, MAY 2006
- MONITORING WELL INSTALLED BY OTHERS
- PREVIOUSLY INSTALLED IRRIGATION WELL
- —x— CHAIN LINK FENCE
- 138 ROOM NUMBER AT CAPUANO SCHOOL
- BOUNDARY OF COMMUNITY GARDENS
- 84 STREET ADDRESS
- MBTA = MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
- MONITORING WELL SAMPLED BY GEI DURING THIS REPORTING PERIOD

GENERAL NOTES:

1. MONITORING WELL LOCATIONS AND ELEVATIONS, AND CAPUANO CENTER COMMUNITY GARDEN LOCATIONS WERE ESTABLISHED BY ON THE GROUND SURVEYS BY BSC GROUP, INC.
2. HORIZONTAL CONTROL FOR THIS PLAN WAS ESTABLISHED BY GPS AND IS BASED ON THE NORTH AMERICAN DATUM OF 1983.
3. VERTICAL CONTROL FOR THIS PLAN WAS ESTABLISHED BY GPS AND IS BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988.
4. STREET PROPERTY LINES, AND BUILDINGS ARE BASED ON SOMERVILLE ASSESSORS MAPS AND ARE BEST FIT RELATIVE TO THE LOCATION OF THE 50 TUFTS ST. BUILDING.
5. GEI OBSERVED ABANDONMENT OF SH-MW1 AND SH-1 THROUGH SH-5 IN 2007.

Phase V Status Report No. 17 and
Remedial Monitoring Report No. 32
50 Tufts Street Somerville, Massachusetts

UniFirst Corporation
Wilmington, Massachusetts

GEI Consultants

MONITORING WELL LOCATIONS

Project 04516-3 | February 2020 | Fig. 4-1

B:\Private\04516\#Drafting\04516-3\Phase V SR 16\045163 PhV SR16 Fig 2-1

LEGEND:

SOIL VAPOR SAMPLED

INDOOR AIR SAMPLED

0 60 120 240

SCALE, FEET

Phase V Status Report No. 17 and
Remedial Monitoring Report No. 32
50 Tufts Street, Somerville, Massachusetts

UniFirst Corporation
Wilmington, Massachusetts

GEI Consultants

SUB-SLAB SOIL VAPOR AND INDOOR AIR SAMPLING

Project 04516-3 | February 2020 | Fig. 4-2

N:\04516\20.0 GIS Data\Map_Files\Phase IV Status Fig 2-2 IA and SV sampling.mxd

LEGEND:

EPMM STATUS

- EPMM INSTALLED (ACTIVE)
- EPMM INSTALLED (OTHER EPMM)

N

0 45 90 180

SCALE, FEET

Phase V Status Report No. 17 and Remedial Monitoring Report No. 32 50 Tufts Street, Somerville, Massachusetts	GEI Consultants	EPMM INSTALLATION PROGRESS
UniFirst Corporation Wilmington, Massachusetts	Project 04516-3	February 2020 Fig. 6-1

N:\04516\20.0 GIS Data\Map_Files\Tufts_St_GIS_Master_Map.mxd

Preferred Criteria For:

Option 1 (SSDS):

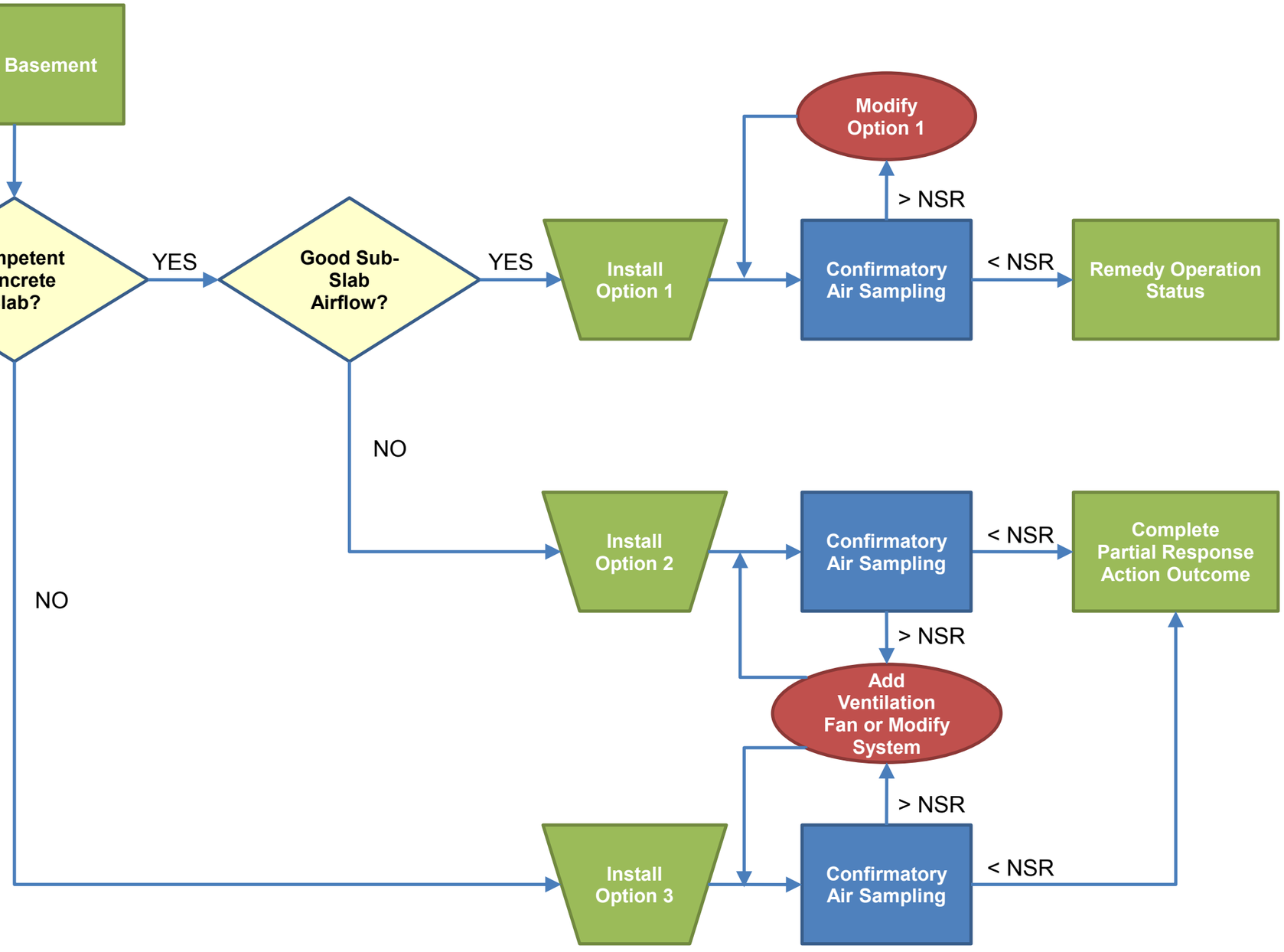
1. Competent concrete slab
2. Poured concrete foundation
3. Granular sub-grade (good sub-slab air flow)

Option 2 (Vapor Trench):

1. Competent concrete slab
2. Silt/clay sub-grade (poor sub-slab air flow)

Option 3 (New Slab Installation):

1. Incompetent concrete slab
2. Silt/clay sub-grade (poor sub-slab air flow)



NSR = No Significant Risk

Phase V Status Report No. 17 and Remedial Monitoring Report No. 32 50 Tufts Street, Somerville, Massachusetts	GEI Consultants	EPMM MITIGATION FLOW CHART
UniFirst Corporation Wilmington, Massachusetts	Project 04516-3	February 2020 Fig. 6-2

LEGEND:

PERMANENT SOLUTION STATUS

- PERMANENT SOLUTION WITH CONDITIONS PARTIAL STATEMENT SUBMITTED
- PERMANENT SOLUTION WITHOUT CONDITIONS PARTIAL STATEMENT SUBMITTED
- REMEDY OPERATION STATUS
- DISPOSAL SITE BOUNDARY (DASHED WHERE INFERRED)

0 50 100 200

SCALE, FEET

Phase V Status Report No. 17 and
Remedial Monitoring Report No. 32
50 Tufts Street, Somerville, Massachusetts

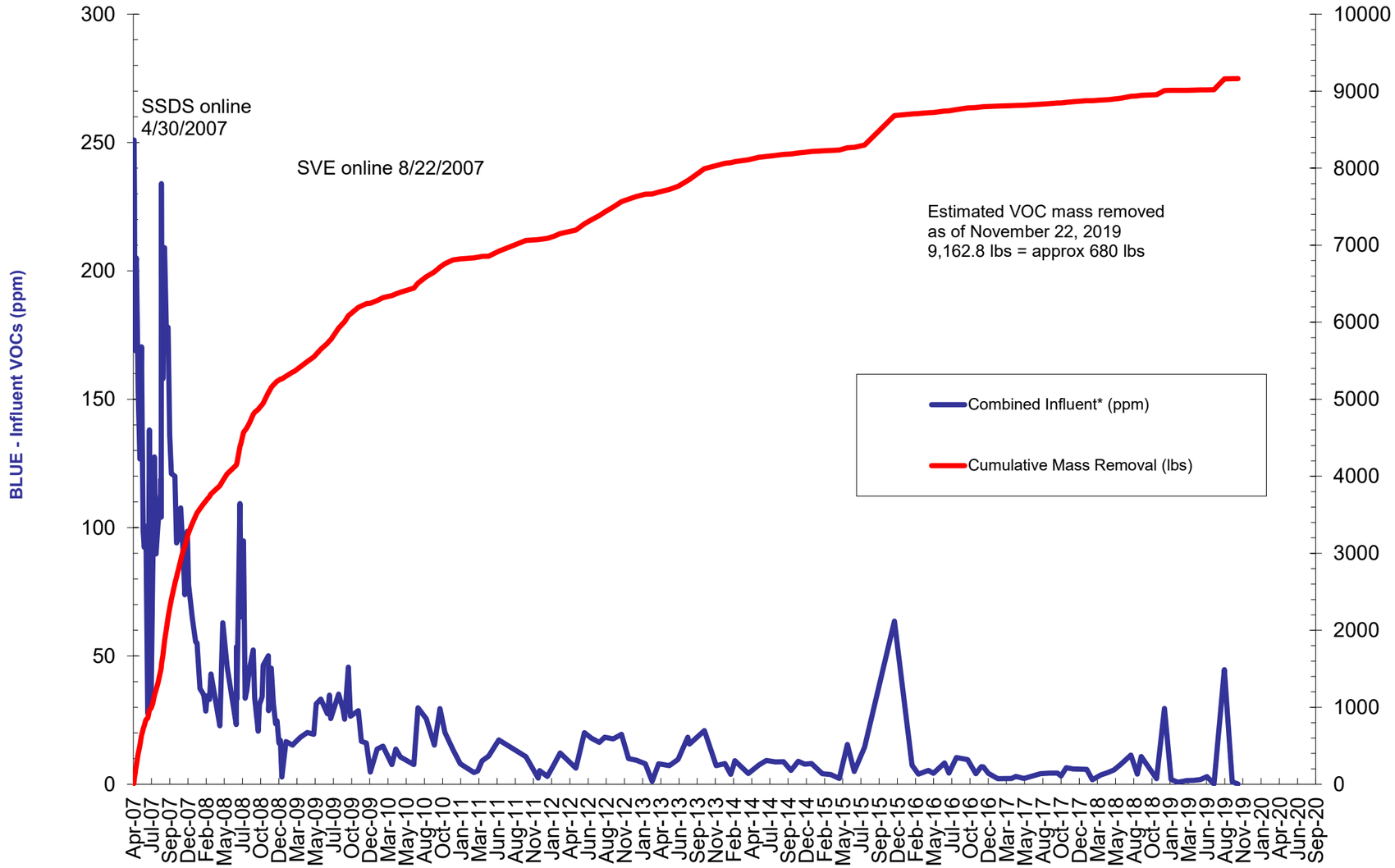
UniFirst Corporation
Wilmington, Massachusetts

GEI Consultants

PERMANENT SOLUTION STATUS

Project 04516-3 | February 2020 | Fig. 6-3

B:\Private\04516\20.0 GIS Data\Map_Files\Tufts_St_RAO_Tracking (for reports).mxd



General Notes:

lbs = pounds.

PCE = tetrachloroethylene (perchloroethylene).

ppm = parts per million.

SSDS = sub-slab depressurization system.

SVE = soil vapor extraction system.

VOC = volatile organic compound.

*Influent concentrations measured by a photoionization detector (PID).

Phase V Status Report No. 17 and Remedial Monitoring Report No. 32 50 Tufts Street, Somerville, Massachusetts	GEI Consultants	COMBINED INFLUENT VOC CONCENTRATIONS AND CUMULATIVE VOC REMOVAL
UniFirst Corporation Wilmington, Massachusetts	Project 04516-3	February 2020 Fig. 8-1

Appendix A

MassDEP Transmittal Forms BWSC-108, BWSC-108A, BWSC-108B and eDEP Transmittal Receipts

Comprehensive Response Action Transmittal Forms:

- **BWSC-108A 1 of 5 (50 Tufts SSDS)**
- **BWSC-108B 1 of 5 (50 Tufts SSDS)**
- **BWSC-108A 2 of 5 (50 Tufts SVE)**
- **BWSC-108B 2 of 5 (50 Tufts SVE)**
- **BWSC-108A 3 of 5 (Capuano Center)**
- **BWSC-108B 3 of 5 (Capuano Center)**
- **BWSC-108A 4 of 5 (Residences)**
- **BWSC-108A 5 of 5 (MNA)**

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC 108

Release Tracking Number
3 - 23246

COMPREHENSIVE RESPONSE ACTION TRANSMITTAL FORM & PHASE I COMPLETION STATEMENT

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

A. SITE LOCATION:

1. Site Name: 50 TUFTS ST & PROP ACROSS THE ST

2. Street Address: 50 TUFTS ST

3. City/Town: SOMERVILLE 4. ZIP Code: 021454129

☑ 5. Check here if the disposal site that is the source of the release is Tier Classified. Check the current Tier Classification Category:

☐ a. Tier I ☐ b. Tier ID ☑ c. Tier II

B. THIS FORM IS BEING USED TO: (check all that apply)

☐ 1. Submit a **Phase I Completion Statement,** pursuant to 310 CMR 40.0484.

☐ 2. Submit a **Revised Phase I Completion Statement,** pursuant to 310 CMR 40.0484.

☐ 3. Submit a **Phase II Scope of Work,** pursuant to 310 CMR 40.0834.

☐ 4. Submit an **interim Phase II Report.** This report does not satisfy the response action deadline requirements in 310 CMR 40.0500.

☐ 5. Submit a **final Phase II Report and Completion Statement,** pursuant to 310 CMR 40.0836.

☐ 6. Submit a **Revised Phase II Report and Completion Statement,** pursuant to 310 CMR 40.0836.

☐ 7. Submit a **Phase III Remedial Action Plan and Completion Statement,** pursuant to 310 CMR 40.0862.

☐ 8. Submit a **Revised Phase III Remedial Action Plan and Completion Statement,** pursuant to 310 CMR 40.0862.

☐ 9. Submit a **Phase IV Remedy Implementation Plan,** pursuant to 310 CMR 40.0874.

☐ 10. Submit a **Modified Phase IV Remedy Implementation Plan,** pursuant to 310 CMR 40.0874.

☐ 11. Submit an **As-Built Construction Report,** pursuant to 310 CMR 40.0875.

☐ 12. Submit a **Phase IV Status Report,** pursuant to 310 CMR 40.0877.

☐ 13. Submit a **Phase IV Completion Statement,** pursuant to 310 CMR 40.0878 and 40.0879.

Specify the outcome of Phase IV activities: (check one)

☐ a. Phase V Operation, Maintenance or Monitoring of the Comprehensive Remedial Action is necessary to achieve a Permanent or Temporary Solution.

☐ b. The requirements of a Permanent Solution have been met. A completed Permanent Solution Statement and Report (BWSC104) will be submitted to DEP.

☐ c. The requirements of a Temporary Solution have been met. A completed Temporary Solution Statement and Report (BWSC104) will be submitted to DEP.

B. THIS FORM IS BEING USED TO (cont.): (check all that apply)

☐ 14. Submit a **Revised Phase IV Completion Statement,** pursuant to 310 CMR 40.0878 and 40.0879.

☑ 15. Submit a **Phase V Status Report,** pursuant to 310 CMR 40.0892.

☑ 16. Submit a **Remedial Monitoring Report.** (This report can only be submitted through eDEP.)

a. Type of Report: (check one) ☐ i. Initial Report ☑ ii. Interim Report ☐ iii. Final Report

b. Frequency of Submittal: (check all that apply)

☐ i. A Remedial Monitoring Report(s) submitted monthly to address an Imminent Hazard.

☐ ii. A Remedial Monitoring Report(s) submitted monthly to address a Condition of Substantial Release Migration.

☑ iii. A Remedial Monitoring Report(s) submitted every six months, concurrent with a Status Report.

☐ iv. A Remedial Monitoring Report(s) submitted annually, concurrent with a Status Report.

c. Status of Site: (check one) ☐ i. Phase IV ☑ ii. Phase V ☐ iii. Remedy Operation Status ☐ iv. Temporary Solution

d. Number of Remedial Systems and/or Monitoring Programs: 5

A separate BWSC108A, CRA Remedial Monitoring Report, must be filled out for each Remedial System and/or Monitoring Program addressed by this transmittal form.

☐ 17. Submit a **Remedy Operation Status,** pursuant to 310 CMR 40.0893.

☑ 18. Submit a **Status Report to maintain a Remedy Operation Status,** pursuant to 310 CMR 40.0893(2).

☐ 19. Submit a **Transfer and/or a Modification of Persons Maintaining a Remedy Operation Status (ROS),** pursuant to 310 CMR 40.0893(5) (check one, or both, if applicable).

☐ a. Submit a Transfer of Persons Maintaining an ROS (the transferee should be the person listed in Section D, "Person Undertaking Response Actions").

☐ b. Submit a Modification of Persons Maintaining an ROS (the primary representative should be the person listed in Section D, "Person Undertaking Response Actions").

c. Number of Persons Maintaining an ROS not including the primary representative: _____

☐ 20. Submit a **Termination of a Remedy Operation Status,** pursuant to 310 CMR 40.0893(6).(check one)

☐ a. Submit a notice indicating ROS performance standards have not been met. A plan and timetable pursuant to 310 CMR 40.0893(6)(b) for resuming the ROS are attached.

☐ b. Submit a notice of Termination of ROS.

☐ 21. Submit a **Phase V Completion Statement,** pursuant to 310 CMR 40.0894.

Specify the outcome of Phase V activities: (check one)

☐ a. The requirements of a Permanent Solution have been met. A completed Permanent Solution Statement and Report (BWSC104) will be submitted to DEP.

☐ b. The requirements for a Temporary Solution have been met. A completed Temporary Solution Statement and Report (BWSC104) will be submitted to DEP.

☐ 22. Submit a **Revised Phase V Completion Statement,** pursuant to 310 CMR 40.0894.

☐ 23. Submit a **Temporary Solution Status Report,** pursuant to 310 CMR 40.0898.

☐ 24. Submit a **Plan for the Application of Remedial Additives** near a sensitive receptor, pursuant to 310 CMR 40.0046(3).

a. Status of Site: (check one)

☐ i. Phase IV ☐ ii. Phase V ☐ iii. Remedy Operation Status ☐ iv. Temporary Solution

C. LSP SIGNATURE AND STAMP:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this transmittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief,

> *if Section B indicates that a* ***Phase I, Phase II, Phase III, Phase IV or Phase V Completion Statement*** *and/or a* ***Termination of a Remedy Operation Status*** *is being submitted*, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed and implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> *if Section B indicates that a* ***Phase II Scope of Work*** *or a* ***Phase IV Remedy Implementation Plan*** *is being submitted,* the response action(s) that is (are) the subject of this submittal (i) has (have) been developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> *if Section B indicates that an* ***As-Built Construction Report,*** *a* ***Remedy Operation Status,*** *a* ***Phase IV, Phase V or Temporary Solution Status Report,*** *a* ***Status Report to Maintain a Remedy Operation Status,*** *a* ***Transfer or Modification of Persons Maintaining a Remedy Operation Status*** *and/or a* ***Remedial Monitoring Report*** *is being submitted,* the response action(s) that is (are) the subject of this submittal (i) is (are) being implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP#: 9719

2. First Name: ILEEN S 3. Last Name: GLADSTONE

4. Telephone: 7817214012 5. Ext.: 6. Email: igladstone@geiconsultants.com

7. Signature:

8. Date: (mm/dd/yyyy)

9. LSP Stamp:

COMPREHENSIVE RESPONSE ACTION TRANSMITTAL FORM & PHASE I COMPLETION STATEMENT

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

D. PERSON UNDERTAKING RESPONSE ACTIONS:

1. Check all that apply: ☐ a. change in contact name ☐ b. change of address ☐ c. change in the person undertaking response actions

2. Name of Organization: UNIFIRST CORPORATION

3. Contact First Name: TIMOTHY 4. Last Name: COSGRAVE

5. Street: 68 JONSPIN RD 6. Title: DIRECTOR EH&S

7. City/Town: WILMINGTON 8. State: MA 9. ZIP Code: 018871090

10. Telephone: 9786588888 11. Ext: 4332 12. Email:

E. RELATIONSHIP TO SITE OF PERSON UNDERTAKING RESPONSE ACTIONS: ☐ Check here to change relationship

☑ 1. RP or PRP ☐ a. Owner ☐ b. Operator ☐ c. Generator ☐ d. Transporter

☑ e. Other RP or PRP Specify: OTHER PRPS

☐ 2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)

☐ 3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))

☐ 4. Any Other Person Undertaking Response Actions Specify Relationship:

F. REQUIRED ATTACHMENT AND SUBMITTALS:

☐ 1. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.

☑ 2. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the submittal of any Phase Reports to DEP.

☑ 3. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the availability of a Phase III Remedial Action Plan.

☑ 4. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the availability of a Phase IV Remedy Implementation Plan.

☑ 5. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of any field work involving the implementation of a Phase IV Remedial Action.

☐ 6. If submitting a Transfer of a Remedy Operation Status (as per 310 CMR 40.0893(5)), check here to certify that a statement detailing the compliance history for the person making this submittal (transferee) is attached.

☐ 7. If submitting a Modification of a Remedy Operation Status (as per 310 CMR 40.0893(5)), check here to certify that a statement detailing the compliance history for each new person making this submittal is attached.

☐ 8. Check here if any non-updatable information provided on this form is incorrect, e.g. Release Address/Location Aid. Send corrections to: BWSC.eDEP@state.ma.us.

☑ 9. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.

COMPREHENSIVE RESPONSE ACTION TRANSMITTAL FORM & PHASE I COMPLETION STATEMENT
Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

G. CERTIFICATION OF PERSON UNDERTAKING RESPONSE ACTIONS:

1. I, _____, attest under the pains and penalties of perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

>*if Section B indicates that this is a* **Modification of a Remedy Operation Status (ROS),** I attest under the pains and penalties of perjury that I am fully authorized to act on behalf of all persons performing response actions under the ROS as stated in 310 CMR 40.0893(5)(d) to receive oral and written correspondence from MassDEP with respect to performance of response actions under the ROS, and to receive a statement of fee amount as per 4.03(3).

I understand that any material received by the Primary Representative from MassDEP shall be deemed received by all the persons performing response actions under the ROS, and I am aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate or incomplete information.

2. By: _____ (Signature) 3. Title: DIRECTOR EH&S

4. For: UNIFIRST CORPORATION (Name of person or entity recorded in Section D) 5. Date: _____ (mm/dd/yyyy)

☐ 6. Check here if the address of the person providing certification is different from address recorded in Section D.

7. Street: _____

8. City/Town: _____ 9. State: _____ 10. ZIP Code: _____

11. Telephone: _____ 12. Ext.: _____ 13. Email: _____

YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO $10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.

Date Stamp (DEP USE ONLY:)

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup
CRA REMEDIAL MONITORING REPORT
Pursuant to 310 CMR 40.0800 (SUBPART H)
Remedial System or Monitoring Program: 1 of: 5

BWSC108 -A

Release Tracking Number
3 - 23246

A. DESCRIPTION OF ACTIVE OPERATION AND MAINTENANCE ACTIVITY:

1. Type of Active Operation and Maintenance Activity: (check all that apply)

☐ a. Active Remedial System: (check all that apply)
- ☐ i. NAPL Recovery
- ☐ ii. Soil Vapor Extraction/Bioventing
- ☐ iii. Vapor-phase Carbon Adsorption
- ☐ iv. Groundwater Recovery
- ☐ v. Dual/Multi-phase Extraction
- ☐ vi. Aqueous-phase Carbon Adsorption
- ☐ vii. Air Stripping
- ☐ viii. Sparging/Biosparging
- ☐ ix. Cat/Thermal Oxidation
- ☐ x. Other Describe:

☑ b. Active Exposure Pathway Elimination Measure
Active Exposure Pathway Mitigation System to address (check one): ☑ i. Indoor Air ☐ ii. Drinking Water

☐ c. Application of Remedial Additives: (check all that apply)
- ☐ i. To the Subsurface
- ☐ ii. To Groundwater (Injection)
- ☐ iii. To the Surface

☐ d. Active Remedial Monitoring Program Without the Application of Remedial Additives: (check all that apply; Sections C, D and E are not required; attach supporting information, data, maps and/or sketches needed by checking Section G5)
- ☐ i. Reactive Wall
- ☐ ii. Natural Attenuation
- ☐ iii. Other Describe:

2. Mode of Operation: (check one)
☑ a. Continuous ☐ b. Intermittent ☐ c. Pulsed ☐ d. One-time Event Only ☐ e. Other:

3. System Effluent/Discharge: (check all that apply)
- ☐ a. Sanitary Sewer/POTW
- ☐ b. Groundwater Re-infiltration/Re-injection: (check one) ☐ i. Downgradient ☐ ii. Upgradient
- ☑ c. Vapor-phase Discharge to Ambient Air: (check one) ☑ i. Off-gas Controls ☐ ii. No Off-gas Controls
- ☐ d. Drinking Water Supply
- ☐ e. Surface Water (including Storm Drains)
- ☐ f. Other Describe:

B. MONITORING FREQUENCY:

1. Reporting period that is the subject of this submittal: From: 6/16/2019 (mm/dd/yyyy) To: 12/15/2019 (mm/dd/yyyy)

2. Number of monitoring events during the reporting period: (check one)

☐ a. System Startup: (if applicable)
- ☐ i. Days 1, 3, 6, and then weekly thereafter, for the first month.
- ☐ ii. Other Describe:

☑ b. Post-system Startup (after first month) or Monitoring Program:
- ☐ i. Monthly
- ☐ ii. Quarterly
- ☐ iii. Annually
- ☑ iv. Other Describe: OPERATIONAL PARAMETERS QUARTERLY, OFF GAS MONTHLY

☐ 3. Check here to certify that the number of required monitoring events were conducted during the reporting period.

C. EFFLUENT/DISCHARGE REGULATION: (check one to indicate how the effluent/discharge limits were established)

☐ 1. NPDES: (check one) ☐ a. Remediation General Permit ☐ b. Individual Permit ☐ c. Emergency Exclusion Effective Date of Permit: (mm/dd/yyyy)

☑ 2. MCP Performance Standard MCP Citations(s): WSC-94-150

☐ 3. DEP Approval Letter Date of Letter: (mm/dd/yyyy)

☐ 4. Other Describe:

D. WASTEWATER TREATMENT PLANT OPERATOR: (check one)

☐ 1. Required due to Remedial Wastewater Treatment Plant in place for more than 30 days.

a. Name: _____ b. Grade: _____

c. License No: _____ d. License Exp. Date: _____ (mm/dd/yyyy)

☐ 2. Not Required

☑ 3. Not Applicable

E. STATUS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM DURING REPORTING PERIOD: (check all that apply)

☑ 1. The Active Remedial System was functional one or more days during the Reporting Period.

a. Days System was Fully Functional: 183 b. GW Recovered (gals): _____

c. NAPL Recovered (gals): _____ d. GW Discharged (gals): _____

e. Avg. Soil Gas Recovery Rate (scfm): 331 f. Avg. Sparging Rate (scfm): _____

☐ 2. Remedial Additives: (check all that apply)

☐ a. No Remedial Additives applied during the Reporting Period.

☐ b. Enhanced Bioremediation Additives applied: (total quantity applied at the site for the current reporting period)

☐ i. Nitrogen/Phosphorus:

Name of Additive	Date	Quantity	Units

☐ ii. Peroxides:

Name of Additive	Date	Quantity	Units

☐ iii. Microorganisms:

Name of Additive	Date	Quantity	Units

☐ iv. Other:

Name of Additive	Date	Quantity	Units

☐ c. Chemical oxidation/reduction additives applied: (total quantity applied at the site for the current reporting period)

☐ i. Permanganates:

Name of Additive	Date	Quantity	Units

☐ ii. Peroxides:

Name of Additive	Date	Quantity	Units

☐ iii. Persulfates:

Name of Additive	Date	Quantity	Units

☐ iv. Other:

Name of Additive	Date	Quantity	Units

E. STATUS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM DURING REPORTING PERIOD: (cont.)

☐ d. Other additives applied: (total quantity applied at the site for the current reporting period)

Name of Additive	Date	Quantity	Units

Name of Additive	Date	Quantity	Units

☐ e. Check here if any additional Remedial Additives were applied. Attach list of additional additives and include Name of Additive, Date Applied, Quantity Applied and Units (in gals. or lbs.)

F. SHUTDOWNS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM: (check all that apply)

☐ 1. The Active Remedial System had unscheduled shutdowns on one or more occasions during the Reporting Period.

a. Number of Unscheduled Shutdowns: _____ b. Total Number of Days of Unscheduled Shutdowns: _____

c. Reason(s) for Unscheduled Shutdowns: _____

☐ 2. The Active Remedial System had scheduled shutdowns on one or more occasions during the Reporting Period.

a. Number of Scheduled Shutdowns: _____ b. Total Number of Days of Scheduled Shutdowns: _____

c. Reason(s) for Scheduled Shutdowns: _____

☐ 3. The Active Remedial System or Active Remedial Monitoring Program was permanently shutdown/discontinued during the Reporting Period.

a. Date of Final System or Monitoring Program Shutdown: _____
(mm/dd/yyyy)

☐ b. No Further Effluent Discharges.

☐ c. No Further Application of Remedial Additives planned; sufficient monitoring completed to demonstrate compliance with 310 CMR 40.0046.

☐ d. No Further Submittals Planned.

☐ e. Other: Describe: _____

G. SUMMARY STATEMENTS: (check all that apply for the current reporting period)

☑ 1. All Active Remedial System checks and effluent analyses required by the approved plan and/or permit were performed when applicable.

☑ 2. There were no significant problems or prolonged (>25% of reporting period) unscheduled shutdowns of the Active Remedial System.

☑ 3. The Active Remedial System or Active Remedial Monitoring Program operated in conformance with the MCP, and all applicable approval conditions and/or permits.

4. Indicate any Operational Problems or Notes:

☐ 5. Check here if additional/supporting Information, data, maps, and/or sketches are attached to the form.

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup
CRA REMEDIAL MONITORING REPORT
MEASUREMENTS
Pursuant to 310 CMR 40.0800 (SUBPART H)
Remedial System or Monitoring Program: 1 of: 5

BWSC108 -B

Release Tracking Number
3 23246

For each Point of Measurement, related to concentration indicate the highest concentration detected during the reporting period, of each oil, hazardous material and/or remedial additive.
For each Point of Measurement for pressure differentials, indicate the lowest pressure differential detected during the reporting period.

Point of Measurement	Date (mm/dd/yyyy)	Contaminant, Measurement and/or Indicator Parameter	Influent Concentration (where applicable)	Midpoint Concentration (where applicable)	(check one) ☑ Discharge ☐ GroundWater Concentration ☐ Pressure Differential	Check here, if ND/BDL	Permissible Concentration or Pressure Differential	Units	Within Permissible Limits? (Y/N)
SSDS	06/11/2019	TOTAL VOCS	3.0		0.0	☑	0.15	PPMV	YES
SSDS	07/10/2019	TOTAL VOCS	2.5		0.0	☑	0.125	PPMV	YES
SSDS	08/22/2019	TOTAL VOCS	44.7		0.0	☑	2.235	PPMV	YES
SSDS	09/23/2019	TOTAL VOCS	1.0		0.0	☑	0.05	PPMV	YES
SSDS	10/17/2019	TOTAL VOCS	10.1		0.0	☑	0.505	PPMV	YES
SSDS	11/22/2019	TOTAL VOCS	1.8		0.0	☑	0.09	PPMV	YES

☐ Check here if any additional BWSC108 B, Measurements Form(s), are needed.

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup
CRA REMEDIAL MONITORING REPORT
Pursuant to 310 CMR 40.0800 (SUBPART H)
Remedial System or Monitoring Program: 2 of: 5

BWSC108 -A

Release Tracking Number
3 - 23246

A. DESCRIPTION OF ACTIVE OPERATION AND MAINTENANCE ACTIVITY:

1. Type of Active Operation and Maintenance Activity: (check all that apply)

☑ a. Active Remedial System: (check all that apply)
- ☐ i. NAPL Recovery
- ☑ ii. Soil Vapor Extraction/Bioventing
- ☐ iii. Vapor-phase Carbon Adsorption
- ☐ iv. Groundwater Recovery
- ☐ v. Dual/Multi-phase Extraction
- ☐ vi. Aqueous-phase Carbon Adsorption
- ☐ vii. Air Stripping
- ☐ viii. Sparging/Biosparging
- ☐ ix. Cat/Thermal Oxidation
- ☐ x. Other Describe:

☐ b. Active Exposure Pathway Elimination Measure
Active Exposure Pathway Mitigation System to address (check one): ☐ i. Indoor Air ☐ ii. Drinking Water

☐ c. Application of Remedial Additives: (check all that apply)
- ☐ i. To the Subsurface
- ☐ ii. To Groundwater (Injection)
- ☐ iii. To the Surface

☐ d. Active Remedial Monitoring Program Without the Application of Remedial Additives: (check all that apply; Sections C, D and E are not required; attach supporting information, data, maps and/or sketches needed by checking Section G5)
- ☐ i. Reactive Wall
- ☐ ii. Natural Attenuation
- ☐ iii. Other Describe:

2. Mode of Operation: (check one)
☑ a. Continuous ☐ b. Intermittent ☐ c. Pulsed ☐ d. One-time Event Only ☐ e. Other:

3. System Effluent/Discharge: (check all that apply)
- ☐ a. Sanitary Sewer/POTW
- ☐ b. Groundwater Re-infiltration/Re-injection: (check one) ☐ i. Downgradient ☐ ii. Upgradient
- ☑ c. Vapor-phase Discharge to Ambient Air: (check one) ☑ i. Off-gas Controls ☐ ii. No Off-gas Controls
- ☐ d. Drinking Water Supply
- ☐ e. Surface Water (including Storm Drains)
- ☐ f. Other Describe:

B. MONITORING FREQUENCY:

1. Reporting period that is the subject of this submittal: From: 6/16/2019 (mm/dd/yyyy) To: 12/15/2019 (mm/dd/yyyy)

2. Number of monitoring events during the reporting period: (check one)
- ☐ a. System Startup: (if applicable)
  - ☐ i. Days 1, 3, 6, and then weekly thereafter, for the first month.
  - ☐ ii. Other Describe:
- ☑ b. Post-system Startup (after first month) or Monitoring Program:
  - ☐ i. Monthly
  - ☐ ii. Quarterly
  - ☐ iii. Annually
  - ☑ iv. Other Describe: OPERATIONAL PARAMETERS QUARTERLY, OFF GAS MONTHLY

☐ 3. Check here to certify that the number of required monitoring events were conducted during the reporting period.

C. EFFLUENT/DISCHARGE REGULATION: (check one to indicate how the effluent/discharge limits were established)

☐ 1. NPDES: (check one) ☐ a. Remediation General Permit ☐ b. Individual Permit ☐ c. Emergency Exclusion Effective Date of Permit: (mm/dd/yyyy)

☑ 2. MCP Performance Standard MCP Citations(s): WSC-94-150

☐ 3. DEP Approval Letter Date of Letter: (mm/dd/yyyy)

☐ 4. Other Describe:

D. WASTEWATER TREATMENT PLANT OPERATOR: (check one)

☐ 1. Required due to Remedial Wastewater Treatment Plant in place for more than 30 days.

a. Name: _____ b. Grade: _____

c. License No: _____ d. License Exp. Date: _____ (mm/dd/yyyy)

☐ 2. Not Required

☑ 3. Not Applicable

E. STATUS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM DURING REPORTING PERIOD: (check all that apply)

☑ 1. The Active Remedial System was functional one or more days during the Reporting Period.

a. Days System was Fully Functional: 183 b. GW Recovered (gals): _____

c. NAPL Recovered (gals): _____ d. GW Discharged (gals): _____

e. Avg. Soil Gas Recovery Rate (scfm): 331 f. Avg. Sparging Rate (scfm): _____

☐ 2. Remedial Additives: (check all that apply)

☐ a. No Remedial Additives applied during the Reporting Period.

☐ b. Enhanced Bioremediation Additives applied: (total quantity applied at the site for the current reporting period)

☐ i. Nitrogen/Phosphorus:

Name of Additive	Date	Quantity	Units

☐ ii. Peroxides:

Name of Additive	Date	Quantity	Units

☐ iii. Microorganisms:

Name of Additive	Date	Quantity	Units

☐ iv. Other:

Name of Additive	Date	Quantity	Units

☐ c. Chemical oxidation/reduction additives applied: (total quantity applied at the site for the current reporting period)

☐ i. Permanganates:

Name of Additive	Date	Quantity	Units

☐ ii. Peroxides:

Name of Additive	Date	Quantity	Units

☐ iii. Persulfates:

Name of Additive	Date	Quantity	Units

☐ iv. Other:

Name of Additive	Date	Quantity	Units

E. STATUS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM DURING REPORTING PERIOD: (cont.)

☐ d. Other additives applied: (total quantity applied at the site for the current reporting period)

Name of Additive	Date	Quantity	Units

Name of Additive	Date	Quantity	Units

☐ e. Check here if any additional Remedial Additives were applied. Attach list of additional additives and include Name of Additive, Date Applied, Quantity Applied and Units (in gals. or lbs.)

F. SHUTDOWNS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM: (check all that apply)

☐ 1. The Active Remedial System had unscheduled shutdowns on one or more occasions during the Reporting Period.

a. Number of Unscheduled Shutdowns: _____ b. Total Number of Days of Unscheduled Shutdowns: _____

c. Reason(s) for Unscheduled Shutdowns: _____

☐ 2. The Active Remedial System had scheduled shutdowns on one or more occasions during the Reporting Period.

a. Number of Scheduled Shutdowns: _____ b. Total Number of Days of Scheduled Shutdowns: _____

c. Reason(s) for Scheduled Shutdowns: _____

☐ 3. The Active Remedial System or Active Remedial Monitoring Program was permanently shutdown/discontinued during the Reporting Period.

a. Date of Final System or Monitoring Program Shutdown: _____
(mm/dd/yyyy)

☐ b. No Further Effluent Discharges.

☐ c. No Further Application of Remedial Additives planned; sufficient monitoring completed to demonstrate compliance with 310 CMR 40.0046.

☐ d. No Further Submittals Planned.

☐ e. Other: Describe: _____

G. SUMMARY STATEMENTS: (check all that apply for the current reporting period)

☑ 1. All Active Remedial System checks and effluent analyses required by the approved plan and/or permit were performed when applicable.

☑ 2. There were no significant problems or prolonged (>25% of reporting period) unscheduled shutdowns of the Active Remedial System.

☑ 3. The Active Remedial System or Active Remedial Monitoring Program operated in conformance with the MCP, and all applicable approval conditions and/or permits.

4. Indicate any Operational Problems or Notes:

☐ 5. Check here if additional/supporting Information, data, maps, and/or sketches are attached to the form.

Massachusetts Department of Environmental Protection
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BWSC108 -B

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For each Point of Measurement, related to concentration indicate the highest concentration detected during the reporting period, of each oil, hazardous material and/or remedial additive.
For each Point of Measurement for pressure differentials, indicate the lowest pressure differential detected during the reporting period.

Point of Measurement	Date (mm/dd/yyyy)	Contaminant, Measurement and/or Indicator Parameter	Influent Concentration (where applicable)	Midpoint Concentration (where applicable)	(check one) ☑ Discharge ☐ GroundWater Concentration ☐ Pressure Differential	Check here, if ND/BDL	Permissible Concentration or Pressure Differential	Units	Within Permissible Limits? (Y/N)
SVE	06/11/2019	TOTAL VOCS	3.0		0.0	☑	0.15	PPMV	YES
SVE	07/10/2019	TOTAL VOCS	2.5		0.0	☑	0.125	PPMV	YES
SVE	08/22/2019	TOTAL VOCS	44.7		0.0	☑	2.235	PPMV	YES
SVE	09/23/2019	TOTAL VOCS	1.0		0.0	☑	0.05	PPMV	YES
SVE	10/17/2019	TOTAL VOCS	10.1		0.0	☑	0.505	PPMV	YES
SVE	11/22/2019	TOTAL VOCS	1.8		0.0	☑	0.09	PPMV	YES

☐ Check here if any additional BWSC108 B, Measurements Form(s), are needed.

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup
CRA REMEDIAL MONITORING REPORT
Pursuant to 310 CMR 40.0800 (SUBPART H)
Remedial System or Monitoring Program: 3 of: 5

BWSC108 -A

Release Tracking Number
3 - 23246

A. DESCRIPTION OF ACTIVE OPERATION AND MAINTENANCE ACTIVITY:

1. Type of Active Operation and Maintenance Activity: (check all that apply)

☐ a. Active Remedial System: (check all that apply)
- ☐ i. NAPL Recovery
- ☐ ii. Soil Vapor Extraction/Bioventing
- ☐ iii. Vapor-phase Carbon Adsorption
- ☐ iv. Groundwater Recovery
- ☐ v. Dual/Multi-phase Extraction
- ☐ vi. Aqueous-phase Carbon Adsorption
- ☐ vii. Air Stripping
- ☐ viii. Sparging/Biosparging
- ☐ ix. Cat/Thermal Oxidation
- ☐ x. Other Describe:

☑ b. Active Exposure Pathway Elimination Measure
Active Exposure Pathway Mitigation System to address (check one): ☑ i. Indoor Air ☐ ii. Drinking Water

☐ c. Application of Remedial Additives: (check all that apply)
- ☐ i. To the Subsurface
- ☐ ii. To Groundwater (Injection)
- ☐ iii. To the Surface

☐ d. Active Remedial Monitoring Program Without the Application of Remedial Additives: (check all that apply; Sections C, D and E are not required; attach supporting information, data, maps and/or sketches needed by checking Section G5)
- ☐ i. Reactive Wall
- ☐ ii. Natural Attenuation
- ☐ iii. Other Describe:

2. Mode of Operation: (check one)
☑ a. Continuous ☐ b. Intermittent ☐ c. Pulsed ☐ d. One-time Event Only ☐ e. Other:

3. System Effluent/Discharge: (check all that apply)
- ☐ a. Sanitary Sewer/POTW
- ☐ b. Groundwater Re-infiltration/Re-injection: (check one) ☐ i. Downgradient ☐ ii. Upgradient
- ☑ c. Vapor-phase Discharge to Ambient Air: (check one) ☐ i. Off-gas Controls ☑ ii. No Off-gas Controls
- ☐ d. Drinking Water Supply
- ☐ e. Surface Water (including Storm Drains)
- ☐ f. Other Describe:

B. MONITORING FREQUENCY:

1. Reporting period that is the subject of this submittal: From: 6/16/2019 (mm/dd/yyyy) To: 12/15/2019 (mm/dd/yyyy)

2. Number of monitoring events during the reporting period: (check one)

☐ a. System Startup: (if applicable)
- ☐ i. Days 1, 3, 6, and then weekly thereafter, for the first month.
- ☐ ii. Other Describe:

☑ b. Post-system Startup (after first month) or Monitoring Program:
- ☐ i. Monthly
- ☑ ii. Quarterly
- ☐ iii. Annually
- ☐ iv. Other Describe:

☐ 3. Check here to certify that the number of required monitoring events were conducted during the reporting period.

C. EFFLUENT/DISCHARGE REGULATION: (check one to indicate how the effluent/discharge limits were established)

☐ 1. NPDES: (check one) ☐ a. Remediation General Permit ☐ b. Individual Permit ☐ c. Emergency Exclusion Effective Date of Permit: (mm/dd/yyyy)

☑ 2. MCP Performance Standard MCP Citations(s): WSC-94-150

☐ 3. DEP Approval Letter Date of Letter: (mm/dd/yyyy)

☐ 4. Other Describe:

D. WASTEWATER TREATMENT PLANT OPERATOR: (check one)

☐ 1. Required due to Remedial Wastewater Treatment Plant in place for more than 30 days.

a. Name: _____ b. Grade: _____

c. License No: _____ d. License Exp. Date: _____ (mm/dd/yyyy)

☐ 2. Not Required

☑ 3. Not Applicable

E. STATUS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM DURING REPORTING PERIOD: (check all that apply)

☑ 1. The Active Remedial System was functional one or more days during the Reporting Period.

a. Days System was Fully Functional: 183 b. GW Recovered (gals): _____

c. NAPL Recovered (gals): _____ d. GW Discharged (gals): _____

e. Avg. Soil Gas Recovery Rate (scfm): 79 f. Avg. Sparging Rate (scfm): _____

☐ 2. Remedial Additives: (check all that apply)

☐ a. No Remedial Additives applied during the Reporting Period.

☐ b. Enhanced Bioremediation Additives applied: (total quantity applied at the site for the current reporting period)

☐ i. Nitrogen/Phosphorus:

Name of Additive	Date	Quantity	Units

☐ ii. Peroxides:

Name of Additive	Date	Quantity	Units

☐ iii. Microorganisms:

Name of Additive	Date	Quantity	Units

☐ iv. Other:

Name of Additive	Date	Quantity	Units

☐ c. Chemical oxidation/reduction additives applied: (total quantity applied at the site for the current reporting period)

☐ i. Permanganates:

Name of Additive	Date	Quantity	Units

☐ ii. Peroxides:

Name of Additive	Date	Quantity	Units

☐ iii. Persulfates:

Name of Additive	Date	Quantity	Units

☐ iv. Other:

Name of Additive	Date	Quantity	Units

E. STATUS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM DURING REPORTING PERIOD: (cont.)

☐ d. Other additives applied: (total quantity applied at the site for the current reporting period)

Name of Additive	Date	Quantity	Units

Name of Additive	Date	Quantity	Units

☐ e. Check here if any additional Remedial Additives were applied. Attach list of additional additives and include Name of Additive, Date Applied, Quantity Applied and Units (in gals. or lbs.)

F. SHUTDOWNS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM: (check all that apply)

☐ 1. The Active Remedial System had unscheduled shutdowns on one or more occasions during the Reporting Period.

a. Number of Unscheduled Shutdowns: _____ b. Total Number of Days of Unscheduled Shutdowns: _____

c. Reason(s) for Unscheduled Shutdowns: _____

☐ 2. The Active Remedial System had scheduled shutdowns on one or more occasions during the Reporting Period.

a. Number of Scheduled Shutdowns: _____ b. Total Number of Days of Scheduled Shutdowns: _____

c. Reason(s) for Scheduled Shutdowns: _____

☐ 3. The Active Remedial System or Active Remedial Monitoring Program was permanently shutdown/discontinued during the Reporting Period.

a. Date of Final System or Monitoring Program Shutdown: _____
(mm/dd/yyyy)

☐ b. No Further Effluent Discharges.

☐ c. No Further Application of Remedial Additives planned; sufficient monitoring completed to demonstrate compliance with 310 CMR 40.0046.

☐ d. No Further Submittals Planned.

☐ e. Other: Describe: _____

G. SUMMARY STATEMENTS: (check all that apply for the current reporting period)

☑ 1. All Active Remedial System checks and effluent analyses required by the approved plan and/or permit were performed when applicable.

☑ 2. There were no significant problems or prolonged (>25% of reporting period) unscheduled shutdowns of the Active Remedial System.

☑ 3. The Active Remedial System or Active Remedial Monitoring Program operated in conformance with the MCP, and all applicable approval conditions and/or permits.

4. Indicate any Operational Problems or Notes:

☐ 5. Check here if additional/supporting Information, data, maps, and/or sketches are attached to the form.

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CRA REMEDIAL MONITORING REPORT
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BWSC108 -B

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For each Point of Measurement, related to concentration indicate the highest concentration detected during the reporting period, of each oil, hazardous material and/or remedial additive.
For each Point of Measurement for pressure differentials, indicate the lowest pressure differential detected during the reporting period.

Point of Measurement	Date (mm/dd/yyyy)	Contaminant, Measurement and/or Indicator Parameter	Influent Concentration (where applicable)	Midpoint Concentration (where applicable)	(check one) ☑ Discharge ☐ GroundWater Concentration ☐ Pressure Differential	Check here, if ND/BDL	Permissible Concentration or Pressure Differential	Units	Within Permissible Limits? (Y/N)
SSDS	07/10/2019	TOTAL VOCS	0.0		0.0	☑	8	PPMV	YES
SSDS	10/17/2019	TOTAL VOCS	0.0		0.0	☑	8	PPMV	YES

☐ Check here if any additional BWSC108 B, Measurements Form(s), are needed.

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup
CRA REMEDIAL MONITORING REPORT
Pursuant to 310 CMR 40.0800 (SUBPART H)
Remedial System or Monitoring Program: 4 of: 5

BWSC108 -A

Release Tracking Number
3 - 23246

A. DESCRIPTION OF ACTIVE OPERATION AND MAINTENANCE ACTIVITY:

1. Type of Active Operation and Maintenance Activity: (check all that apply)

☐ a. Active Remedial System: (check all that apply)
- ☐ i. NAPL Recovery
- ☐ ii. Soil Vapor Extraction/Bioventing
- ☐ iii. Vapor-phase Carbon Adsorption
- ☐ iv. Groundwater Recovery
- ☐ v. Dual/Multi-phase Extraction
- ☐ vi. Aqueous-phase Carbon Adsorption
- ☐ vii. Air Stripping
- ☐ viii. Sparging/Biosparging
- ☐ ix. Cat/Thermal Oxidation
- ☐ x. Other Describe:

☑ b. Active Exposure Pathway Elimination Measure
Active Exposure Pathway Mitigation System to address (check one): ☑ i. Indoor Air ☐ ii. Drinking Water

☐ c. Application of Remedial Additives: (check all that apply)
- ☐ i. To the Subsurface
- ☐ ii. To Groundwater (Injection)
- ☐ iii. To the Surface

☐ d. Active Remedial Monitoring Program Without the Application of Remedial Additives: (check all that apply; Sections C, D and E are not required; attach supporting information, data, maps and/or sketches needed by checking Section G5)
- ☐ i. Reactive Wall
- ☐ ii. Natural Attenuation
- ☐ iii. Other Describe:

2. Mode of Operation: (check one)
☑ a. Continuous ☐ b. Intermittent ☐ c. Pulsed ☐ d. One-time Event Only ☐ e. Other:

3. System Effluent/Discharge: (check all that apply)
- ☐ a. Sanitary Sewer/POTW
- ☐ b. Groundwater Re-infiltration/Re-injection: (check one) ☐ i. Downgradient ☐ ii. Upgradient
- ☑ c. Vapor-phase Discharge to Ambient Air: (check one) ☐ i. Off-gas Controls ☑ ii. No Off-gas Controls
- ☐ d. Drinking Water Supply
- ☐ e. Surface Water (including Storm Drains)
- ☐ f. Other Describe:

B. MONITORING FREQUENCY:

1. Reporting period that is the subject of this submittal: From: 6/16/2019 (mm/dd/yyyy) To: 12/15/2019 (mm/dd/yyyy)

2. Number of monitoring events during the reporting period: (check one)

☐ a. System Startup: (if applicable)
- ☐ i. Days 1, 3, 6, and then weekly thereafter, for the first month.
- ☐ ii. Other Describe:

☑ b. Post-system Startup (after first month) or Monitoring Program:
- ☐ i. Monthly
- ☐ ii. Quarterly
- ☑ iii. Annually
- ☐ iv. Other Describe:

☐ 3. Check here to certify that the number of required monitoring events were conducted during the reporting period.

C. EFFLUENT/DISCHARGE REGULATION: (check one to indicate how the effluent/discharge limits were established)

☐ 1. NPDES: (check one) ☐ a. Remediation General Permit ☐ b. Individual Permit ☐ c. Emergency Exclusion Effective Date of Permit: (mm/dd/yyyy)

☑ 2. MCP Performance Standard MCP Citations(s): WSC-94-150

☐ 3. DEP Approval Letter Date of Letter: (mm/dd/yyyy)

☐ 4. Other Describe:

D. WASTEWATER TREATMENT PLANT OPERATOR: (check one)

☐ 1. Required due to Remedial Wastewater Treatment Plant in place for more than 30 days.

a. Name: _____ b. Grade: _____

c. License No: _____ d. License Exp. Date: _____ (mm/dd/yyyy)

☐ 2. Not Required

☑ 3. Not Applicable

E. STATUS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM DURING REPORTING PERIOD: (check all that apply)

☑ 1. The Active Remedial System was functional one or more days during the Reporting Period.

a. Days System was Fully Functional: 183 b. GW Recovered (gals): _____

c. NAPL Recovered (gals): _____ d. GW Discharged (gals): _____

e. Avg. Soil Gas Recovery Rate (scfm): 87 f. Avg. Sparging Rate (scfm): _____

☐ 2. Remedial Additives: (check all that apply)

☐ a. No Remedial Additives applied during the Reporting Period.

☐ b. Enhanced Bioremediation Additives applied: (total quantity applied at the site for the current reporting period)

☐ i. Nitrogen/Phosphorus:

Name of Additive	Date	Quantity	Units

☐ ii. Peroxides:

Name of Additive	Date	Quantity	Units

☐ iii. Microorganisms:

Name of Additive	Date	Quantity	Units

☐ iv. Other:

Name of Additive	Date	Quantity	Units

☐ c. Chemical oxidation/reduction additives applied: (total quantity applied at the site for the current reporting period)

☐ i. Permanganates:

Name of Additive	Date	Quantity	Units

☐ ii. Peroxides:

Name of Additive	Date	Quantity	Units

☐ iii. Persulfates:

Name of Additive	Date	Quantity	Units

☐ iv. Other:

Name of Additive	Date	Quantity	Units

E. STATUS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM DURING REPORTING PERIOD: (cont.)

☐ d. Other additives applied: (total quantity applied at the site for the current reporting period)

Name of Additive	Date	Quantity	Units

Name of Additive	Date	Quantity	Units

☐ e. Check here if any additional Remedial Additives were applied. Attach list of additional additives and include Name of Additive, Date Applied, Quantity Applied and Units (in gals. or lbs.)

F. SHUTDOWNS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM: (check all that apply)

☑ 1. The Active Remedial System had unscheduled shutdowns on one or more occasions during the Reporting Period.

a. Number of Unscheduled Shutdowns: 1 b. Total Number of Days of Unscheduled Shutdowns: 61

c. Reason(s) for Unscheduled Shutdowns: FAN REPLACEMENT AT 35-37 KNOWLTON STREET

☑ 2. The Active Remedial System had scheduled shutdowns on one or more occasions during the Reporting Period.

a. Number of Scheduled Shutdowns: 1 b. Total Number of Days of Scheduled Shutdowns: 7

c. Reason(s) for Scheduled Shutdowns: 13 KNOWLTON STREET CLOSURE SAMPLING

☐ 3. The Active Remedial System or Active Remedial Monitoring Program was permanently shutdown/discontinued during the Reporting Period.

a. Date of Final System or Monitoring Program Shutdown: _____ (mm/dd/yyyy)

☐ b. No Further Effluent Discharges.

☐ c. No Further Application of Remedial Additives planned; sufficient monitoring completed to demonstrate compliance with 310 CMR 40.0046.

☐ d. No Further Submittals Planned.

☐ e. Other: Describe: _____

G. SUMMARY STATEMENTS: (check all that apply for the current reporting period)

☑ 1. All Active Remedial System checks and effluent analyses required by the approved plan and/or permit were performed when applicable.

☐ 2. There were no significant problems or prolonged (>25% of reporting period) unscheduled shutdowns of the Active Remedial System.

☑ 3. The Active Remedial System or Active Remedial Monitoring Program operated in conformance with the MCP, and all applicable approval conditions and/or permits.

4. Indicate any Operational Problems or Notes:

☐ 5. Check here if additional/supporting Information, data, maps, and/or sketches are attached to the form.

Massachusetts Department of Environmental Protection
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CRA REMEDIAL MONITORING REPORT
Pursuant to 310 CMR 40.0800 (SUBPART H)
Remedial System or Monitoring Program: 5 of: 5

BWSC108 -A

Release Tracking Number
3 - 23246

A. DESCRIPTION OF ACTIVE OPERATION AND MAINTENANCE ACTIVITY:

1. Type of Active Operation and Maintenance Activity: (check all that apply)

☐ a. Active Remedial System: (check all that apply)
- ☐ i. NAPL Recovery
- ☐ ii. Soil Vapor Extraction/Bioventing
- ☐ iii. Vapor-phase Carbon Adsorption
- ☐ iv. Groundwater Recovery
- ☐ v. Dual/Multi-phase Extraction
- ☐ vi. Aqueous-phase Carbon Adsorption
- ☐ vii. Air Stripping
- ☐ viii. Sparging/Biosparging
- ☐ ix. Cat/Thermal Oxidation
- ☐ x. Other Describe:

☐ b. Active Exposure Pathway Elimination Measure
Active Exposure Pathway Mitigation System to address (check one): ☐ i. Indoor Air ☐ ii. Drinking Water

☐ c. Application of Remedial Additives: (check all that apply)
- ☐ i. To the Subsurface
- ☐ ii. To Groundwater (Injection)
- ☐ iii. To the Surface

☑ d. Active Remedial Monitoring Program Without the Application of Remedial Additives: (check all that apply; Sections C, D and E are not required; attach supporting information, data, maps and/or sketches needed by checking Section G5)
- ☐ i. Reactive Wall
- ☑ ii. Natural Attenuation
- ☐ iii. Other Describe:

2. Mode of Operation: (check one)
☐ a. Continuous ☐ b. Intermittent ☐ c. Pulsed ☐ d. One-time Event Only ☐ e. Other:

3. System Effluent/Discharge: (check all that apply)
- ☐ a. Sanitary Sewer/POTW
- ☐ b. Groundwater Re-infiltration/Re-injection: (check one) ☐ i. Downgradient ☐ ii. Upgradient
- ☐ c. Vapor-phase Discharge to Ambient Air: (check one) ☐ i. Off-gas Controls ☐ ii. No Off-gas Controls
- ☐ d. Drinking Water Supply
- ☐ e. Surface Water (including Storm Drains)
- ☐ f. Other Describe:

B. MONITORING FREQUENCY:

1. Reporting period that is the subject of this submittal: From: 6/16/2019 (mm/dd/yyyy) To: 12/15/2019 (mm/dd/yyyy)

2. Number of monitoring events during the reporting period: (check one)

☐ a. System Startup: (if applicable)
- ☐ i. Days 1, 3, 6, and then weekly thereafter, for the first month.
- ☐ ii. Other Describe:

☑ b. Post-system Startup (after first month) or Monitoring Program:
- ☐ i. Monthly
- ☐ ii. Quarterly
- ☑ iii. Annually
- ☐ iv. Other Describe:

☐ 3. Check here to certify that the number of required monitoring events were conducted during the reporting period.

C. EFFLUENT/DISCHARGE REGULATION: (check one to indicate how the effluent/discharge limits were established)

☐ 1. NPDES: (check one) ☐ a. Remediation General Permit ☐ b. Individual Permit ☐ c. Emergency Exclusion Effective Date of Permit: (mm/dd/yyyy)

☐ 2. MCP Performance Standard MCP Citations(s):

☐ 3. DEP Approval Letter Date of Letter: (mm/dd/yyyy)

☐ 4. Other Describe:

D. WASTEWATER TREATMENT PLANT OPERATOR: (check one)

☐ 1. Required due to Remedial Wastewater Treatment Plant in place for more than 30 days.

a. Name: _____ b. Grade: _____

c. License No: _____ d. License Exp. Date: _____ (mm/dd/yyyy)

☐ 2. Not Required

☑ 3. Not Applicable

E. STATUS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM DURING REPORTING PERIOD: (check all that apply)

☐ 1. The Active Remedial System was functional one or more days during the Reporting Period.

a. Days System was Fully Functional: _____ b. GW Recovered (gals): _____

c. NAPL Recovered (gals): _____ d. GW Discharged (gals): _____

e. Avg. Soil Gas Recovery Rate (scfm): _____ f. Avg. Sparging Rate (scfm): _____

☐ 2. Remedial Additives: (check all that apply)

☐ a. No Remedial Additives applied during the Reporting Period.

☐ b. Enhanced Bioremediation Additives applied: (total quantity applied at the site for the current reporting period)

☐ i. Nitrogen/Phosphorus:

Name of Additive	Date	Quantity	Units

☐ ii. Peroxides:

Name of Additive	Date	Quantity	Units

☐ iii. Microorganisms:

Name of Additive	Date	Quantity	Units

☐ iv. Other:

Name of Additive	Date	Quantity	Units

☐ c. Chemical oxidation/reduction additives applied: (total quantity applied at the site for the current reporting period)

☐ i. Permanganates:

Name of Additive	Date	Quantity	Units

☐ ii. Peroxides:

Name of Additive	Date	Quantity	Units

☐ iii. Persulfates:

Name of Additive	Date	Quantity	Units

☐ iv. Other:

Name of Additive	Date	Quantity	Units

E. STATUS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM DURING REPORTING PERIOD: (cont.)

☐ d. Other additives applied: (total quantity applied at the site for the current reporting period)

Name of Additive	Date	Quantity	Units	Name of Additive	Date	Quantity	Units

☐ e. Check here if any additional Remedial Additives were applied. Attach list of additional additives and include Name of Additive, Date Applied, Quantity Applied and Units (in gals. or lbs.)

F. SHUTDOWNS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM: (check all that apply)

☐ 1. The Active Remedial System had unscheduled shutdowns on one or more occasions during the Reporting Period.

a. Number of Unscheduled Shutdowns: _____ b. Total Number of Days of Unscheduled Shutdowns: _____

c. Reason(s) for Unscheduled Shutdowns: _____

☐ 2. The Active Remedial System had scheduled shutdowns on one or more occasions during the Reporting Period.

a. Number of Scheduled Shutdowns: _____ b. Total Number of Days of Scheduled Shutdowns: _____

c. Reason(s) for Scheduled Shutdowns: _____

☐ 3. The Active Remedial System or Active Remedial Monitoring Program was permanently shutdown/discontinued during the Reporting Period.

a. Date of Final System or Monitoring Program Shutdown: _____
(mm/dd/yyyy)

☐ b. No Further Effluent Discharges.

☐ c. No Further Application of Remedial Additives planned; sufficient monitoring completed to demonstrate compliance with 310 CMR 40.0046.

☐ d. No Further Submittals Planned.

☐ e. Other: Describe: _____

G. SUMMARY STATEMENTS: (check all that apply for the current reporting period)

☐ 1. All Active Remedial System checks and effluent analyses required by the approved plan and/or permit were performed when applicable.

☐ 2. There were no significant problems or prolonged (>25% of reporting period) unscheduled shutdowns of the Active Remedial System.

☑ 3. The Active Remedial System or Active Remedial Monitoring Program operated in conformance with the MCP, and all applicable approval conditions and/or permits.

4. Indicate any Operational Problems or Notes:

☑ 5. Check here if additional/supporting Information, data, maps, and/or sketches are attached to the form.

Additional supporting information for:

CRA REMEDIAL MONITORING REPORT

Pursuant to 310 CMR 40.0800 (Subpart H)

BWSC-108A, Remedial System 5 of 5, Section G, Question 5: **SUMMARY STATEMENTS:** Check here if additional/supporting Information, data, maps, and/or sketches are attached to the form.

The Summary Statement for BWSC-108A Remedial System 5 of 5 has been submitted via eDEP, Transmittal No. 1165192 as part of the “Phase V Status Report No. 17 and Remedial Monitoring Report No. 32,” RTN 3-23246, 50 Tufts Street, Somerville, Massachusetts, dated February 3, 2020.

Additional supporting information for:

COMPREHENSIVE RESPONSE ACTION TRANSMITTAL FORM & PHASE I COMPLETION STATEMENT

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

BWSC-108, Section B, Question 15 and 18: Submit a **Phase V Status Report and Status Report to maintain a Remedy Operation Status**, pursuant to 310 CMR 40.0893(2).

The Phase V Status Report and Status Report to maintain ROS has been submitted via eDEP, Transmittal No. 1165192, as “Phase V Status Report No. 17 and Remedial Monitoring Report No. 32,” RTN 3-23246, 50 Tufts Street, Somerville, Massachusetts, dated February 3, 2020.

Appendix B

Property Owner Notification Letters

GEI Consultants

Consulting Engineers and Scientists

February 3, 2020
Project 04516-3

Correia Carmelia For Life
137 Cross Street
Somerville, MA 02145

To Whom It May Concern:

Re: Informational Notice to Property Owners
50 Tufts Street
Somerville, Massachusetts
DEP RTN 3-23246

On behalf of UniFirst Corporation (UniFirst) of Wilmington, Massachusetts, and in accordance with the Massachusetts Contingency Plan (MCP; 310 CMR 40.1406), GEI Consultants, Inc. is providing you with the attached "Informational Notice to Property Owners" (Form BWSC-122) for the 50 Tufts Street Site in Somerville, Massachusetts (the Site), which is provided to the owner of each property located within the Site.

GEI has completed the Phase V Status Report No. 17 and Remedial Monitoring Report No. 32 (the Report), dated February 3, 2020 for the Site. A copy of the Report's Executive Summary and maps showing the location and boundary of the Site are also attached.

Individuals and public officials may request additional public involvement activities under 310 CMR 40.1400.

If you have any questions, please do not hesitate to contact me at 781.721.4012 or igladstone@geiconsultants.com.

Sincerely,

GEI CONSULTANTS, INC.

Ileen S. Gladstone, P.E., LSP, LEED AP
Senior Vice President

ISG:jam
Enclosures

c: Timothy Cosgrave, UniFirst Corporation
Massachusetts Department of Environmental Protection

GEI Consultants, Inc.
400 Unicorn Park Drive, Woburn, MA 01801
781.721.4000 fax: 781.721.4073

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC122

This notice is related to:
Release Tracking Number

3 - 23246

INFORMATIONAL NOTICE TO PROPERTY OWNERS

As Required by 310 CMR 40.1406 of the Massachusetts Contingency Plan (MCP)

A. DISPOSAL SITE ADDRESS: (associated with Release Tracking Number provided above)

1. Street Address: 50 Tufts Street

2. City/Town: Somerville, MA 3. ZIP Code: 02145-0000

4. Assessor's Parcel ID:

B. THIS NOTICE IS BEING PROVIDED TO THE FOLLOWING PROPERTY OWNER:

1. Name of Property Owner: Correia Carmelia For Life

2. Address of Property For Which This Notice is Being Provided: (property owned by person named in B1)

a. Street Address: 137 Cross Street

b. City/Town: Somerville, MA c. ZIP Code: 02145-0000

3. Assessor's Parcel ID:

C. THIS NOTICE IS BEING GIVEN : (check one)

- [x] 1. Upon Completion of a Phase II Comprehensive Site Assessment.
- [ ] 2. Upon Submittal of a Permanent or Temporary Solution Statement (i.e., Site Closure Report).
- [ ] 3. Upon Completion of Additional Investigation showing that Oil or Hazardous Material is not Present at the Property.

D. DESCRIPTION OF OIL AND/OR HAZARDOUS MATERIAL PRESENT OR LIKELY TO BE PRESENT AT THE PROPERTY : (check all that apply)

AFFECTED ENVIRONMENTAL MEDIA	PRINCIPAL CHEMICAL(S) PRESENT
[x] 1. Soil	Tetrachloroethylene (PCE)
[ ] 2. Groundwater	
[ ] 3. Surface Water	
[ ] 4. Sediment	
[ ] 5. Indoor Air	
[ ] 6. Soil Gas	
[ ] 7. Other: (specify)	

E. ATTACHMENTS PROVIDED WITH THIS NOTICE, AS REQUIRED BY 310 CMR 40.1406:

- [x] 1. A Copy of the Map Showing or a Description Describing the Area where the Oil and/or Hazardous Material is or is likely to be Present.
- [ ] 2. A Copy of the Phase II Comprehensive Site Assessment or Permanent or Temporary Solution Statement Conclusions.
- [ ] 3. Specify the category of Solution that applies to the Disposal Site.
  - [ ] 1. Permanent Solution with No Conditions.
  - [ ] 2. Permanent Solution with Conditions.
    - [ ] i. An Activity and Use Limitation has been implemented.
    - [ ] ii. An Activity and Use Limitation has not been implemented.
  - [ ] 3. Temporary Solution.

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC122

This notice is related to:
Release Tracking Number

3 - 23246

INFORMATIONAL NOTICE TO PROPERTY OWNERS

As Required by 310 CMR 40.1406 of the Massachusetts Contingency Plan (MCP)

F. CONTACT INFORMATION RELATING TO THE PARTY PROVIDING THIS NOTICE:

1. Name of Organization: GEI Consultants, Inc.
2. Contact First Name: Ileen
3. Last Name: Gladstone
4. Street: 400 Unicorn Park Drive
5. Title: Senior Vice President
6. City/Town: Woburn
7. State: MA
8. ZIP Code: 01801-0000
9. Telephone: (781) 721-4012
10. Email: igladstone@geiconsultants.com

MASSACHUSETTS REGULATIONS THAT REQUIRE THIS NOTICE

This notice is being provided pursuant to the Massachusetts Contingency Plan and the notification requirement at 310 CMR 40.1406. The Massachusetts Contingency Plan is a state regulation that specifies requirements for parties who are taking actions to address releases of chemicals (oil or hazardous material) to the environment.

THE PERSON(S) PROVIDING THIS NOTICE

This notice has been sent to you by the party(ies) who is/are addressing a release of oil or hazardous material to the environment at the location listed in **Section A** on the reverse side of this form.

PURPOSE OF THIS NOTICE

Parties who are taking actions to respond to releases of oil or hazardous material to the environment are required by state regulations (referred to above) to notify the owners of property where the oil or hazardous material is or is likely to be present. These same parties are also required to notify property owners upon completion of actions to address the oil or hazardous material, or if additional investigations show that the oil or hazardous material is not present at a property. **Section C** on the reverse side of this form indicates the circumstance under which you are receiving this notice at this time.

INFORMATION RELATED TO YOUR PROPERTY

Section D on the reverse side of this form indicates the type(s) of oil or hazardous material that is or is likely to be present at your property, and the environmental medium (e.g., soil or groundwater) where it is or is likely to be present. **Please note** that when an investigation indicates that the oil or hazardous material is or is likely to be present at your property, this does not mean that the oil or hazardous material is posing a health risk to you. Parties who are taking actions to address oil and hazardous material releases are required by state regulations to adequately investigate these releases and take necessary actions to ensure that affected properties meet standards that are protective of human health and the environment.

ATTACHED MAP OR DESCRIPTION AND REPORT CONCLUSIONS

The party providing this notice to you is required to attach a map or description that indicates the boundaries of the area where the oil or hazardous material is or is likely to be present, and the conclusions of the site investigation or closure report **(Section E).** These attachments should give you additional information about the nature and location of the oil or hazardous material with respect to your property.

FOR MORE INFORMATION

Information about the general process for addressing releases of oil or hazardous material under the Massachusetts Contingency Plan and related public involvement opportunities may be found at http://www.mass.gov/eea/agencies/massdep/cleanup.

For more information regarding this notice, you may contact the party listed in **Section F** of this form. Information about the disposal site identified in **Section A** is also available in files at the Massachusetts Department of Environmental Protection.

See http://public.dep.state.ma.us/SearchableSites2/Search.aspx to view site-specific files on-line or http://mass.gov/eea/agencies/massdep/about/contacts/conduct-a-file-review.html if you would like to make an appointment to see these files in person. Please reference the **Release Tracking Number** listed in the upper right hand corner on the reverse side of this form when making file review appointments.

Appendix C

Laboratory Testing Reports

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

GEI Consultants, Inc.

Tufts Street, Somerville, MA

045163

SGS Job Number: JC99215

Sampling Date: 11/22/19

Report to:

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801
JRoman@GEIConsultants.com; mgreer@geiconsultants.com;
bfongmurdock@geiconsultants.com
ATTN: Joe Roman

Total number of pages in report: 165

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Laura Degenhardt
General Manager

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

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Test results relate only to samples analyzed.

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Please share your ideas about
how we can serve you better at:
EHS.US.CustomerCare@sgs.com

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SGS North America Inc.

Sample Summary

GEI Consultants, Inc.

Job No: JC99215

Tufts Street, Somerville, MA
Project No: 045163

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
This report contains results reported as ND = Not detected. The following applies: Organics ND = Not detected above the RL							
JC99215-1	11/22/19	10:20	MEG	11/25/19	AQ	Ground Water	045163-MW112A
JC99215-2	11/22/19	12:30	MEG	11/25/19	AQ	Ground Water	045163-MW118D
JC99215-3	11/22/19	11:30	MEG	11/25/19	AQ	Ground Water	045163-MW121D
JC99215-4	11/22/19	13:40	MEG	11/25/19	AQ	Ground Water	045163-MW122

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	GEI Consultants, Inc.	**Job No**	JC99215
Site:	Tufts Street, Somerville, MA	**Report Date**	12/2/2019 5:02:21 PM

On 11/25/2019, 4 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc. at a maximum corrected temperature of 2.9 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. Job Number of JC99215 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Compounds qualified as out of range in the continuing calibration summary report are acceptable as per method requirements when there is a high bias but the sample result is non-detect.

MS Volatiles By Method SW846 8260C

Matrix: AQ **Batch ID:** V2C7731

- All samples were analyzed within the recommended method holding time.
- Sample(s) JC99215-4MS, JC99215-4MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Matrix Spike Recovery(s) for Tetrachloroethene are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- Matrix Spike Duplicate Recovery(s) for Tetrachloroethene are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- JC99215-4: Diluted due to high concentration of target compound.
- JC99215-4 for 1,2,4-Trichlorobenzene: Associated CCV outside of control limits high, sample was ND.
- JC99215-1 for 1,2,4-Trichlorobenzene: Associated CCV outside of control limits high, sample was ND.
- JC99215-2 for 1,2,4-Trichlorobenzene: Associated CCV outside of control limits high, sample was ND.
- JC99215-3 for 1,2,4-Trichlorobenzene: Associated CCV outside of control limits high, sample was ND.

SGS North America Inc. certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS North America Inc. is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by SGS North America Inc indicated via signature on the report cover

Summary of Hits

Job Number: JC99215
Account: GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA
Collected: 11/22/19

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC99215-1	**045163-MW112A**					
1,1-Dichloroethane		36.9	1.0		ug/l	SW846 8260C
1,1-Dichloroethene		63.1	1.0		ug/l	SW846 8260C
cis-1,2-Dichloroethene		131	1.0		ug/l	SW846 8260C
Methyl Tert Butyl Ether		21.7	1.0		ug/l	SW846 8260C
Tetrachloroethene		463	10		ug/l	SW846 8260C
1,1,1-Trichloroethane		5.0	1.0		ug/l	SW846 8260C
Trichloroethene		136	1.0		ug/l	SW846 8260C
Vinyl chloride		1.4	1.0		ug/l	SW846 8260C
JC99215-2	**045163-MW118D**					
1,1-Dichloroethane		33.9	1.0		ug/l	SW846 8260C
1,1-Dichloroethene		2.6	1.0		ug/l	SW846 8260C
cis-1,2-Dichloroethene		57.3	1.0		ug/l	SW846 8260C
Tetrachloroethene		40.9	1.0		ug/l	SW846 8260C
Trichloroethene		11.4	1.0		ug/l	SW846 8260C
Vinyl chloride		11.8	1.0		ug/l	SW846 8260C
JC99215-3	**045163-MW121D**					
1,1-Dichloroethane		18.0	1.0		ug/l	SW846 8260C
1,1-Dichloroethene		8.7	1.0		ug/l	SW846 8260C
cis-1,2-Dichloroethene		85.4	1.0		ug/l	SW846 8260C
Tetrachloroethene		64.8	1.0		ug/l	SW846 8260C
Trichloroethene		40.0	1.0		ug/l	SW846 8260C
Vinyl chloride		4.5	1.0		ug/l	SW846 8260C
JC99215-4	**045163-MW122**					
1,1-Dichloroethane [a]		16.4	5.0		ug/l	SW846 8260C
1,1-Dichloroethene [a]		6.9	5.0		ug/l	SW846 8260C
cis-1,2-Dichloroethene [a]		95.8	5.0		ug/l	SW846 8260C
Tetrachloroethene [a]		961	5.0		ug/l	SW846 8260C
Trichloroethene [a]		131	5.0		ug/l	SW846 8260C

(a) Diluted due to high concentration of target compound.

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Client Sample ID:	045163-MW112A		
Lab Sample ID:	JC99215-1	**Date Sampled:**	11/22/19
Matrix:	AQ - Ground Water	**Date Received:**	11/25/19
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Tufts Street, Somerville, MA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2C172062.D	1	11/28/19 02:35	EH	n/a	n/a	V2C7731
Run #2	2C172063.D	10	11/28/19 03:03	EH	n/a	n/a	V2C7731

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	10	ug/l	
71-43-2	Benzene	ND	0.50	ug/l	
108-86-1	Bromobenzene	ND	1.0	ug/l	
74-97-5	Bromochloromethane	ND	1.0	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	ug/l	
75-25-2	Bromoform	ND	1.0	ug/l	
74-83-9	Bromomethane	ND	2.0	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	ug/l	
104-51-8	n-Butylbenzene	ND	2.0	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	ug/l	
75-15-0	Carbon disulfide	ND	2.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	ug/l	
108-90-7	Chlorobenzene	ND	1.0	ug/l	
75-00-3	Chloroethane	ND	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	ug/l	
74-87-3	Chloromethane	ND	1.0	ug/l	
95-49-8	o-Chlorotoluene	ND	2.0	ug/l	
106-43-4	p-Chlorotoluene	ND	2.0	ug/l	
108-20-3	Di-Isopropyl ether	ND	2.0	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	ug/l	
75-34-3	1,1-Dichloroethane	36.9	1.0	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/l	
75-35-4	1,1-Dichloroethene	63.1	1.0	ug/l	
156-59-2	cis-1,2-Dichloroethene	131	1.0	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	ug/l	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	045163-MW112A		
Lab Sample ID:	JC99215-1	**Date Sampled:**	11/22/19
Matrix:	AQ - Ground Water	**Date Received:**	11/25/19
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Tufts Street, Somerville, MA		

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	1.0	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	ug/l	
123-91-1	1,4-Dioxane	ND	130	ug/l	
60-29-7	Ethyl Ether	ND	2.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	ug/l	
591-78-6	2-Hexanone	ND	5.0	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	ug/l	
99-87-6	p-Isopropyltoluene	ND	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	21.7	1.0	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	ug/l	
74-95-3	Methylene bromide	ND	1.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	ug/l	
91-20-3	Naphthalene	ND	5.0	ug/l	
103-65-1	n-Propylbenzene	ND	2.0	ug/l	
100-42-5	Styrene	ND	1.0	ug/l	
994-05-8	tert-Amyl Methyl Ether	ND	2.0	ug/l	
637-92-3	tert-Butyl Ethyl Ether	ND	2.0	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	ug/l	
127-18-4	Tetrachloroethene	463 [a]	10	ug/l	
109-99-9	Tetrahydrofuran	ND	10	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene [b]	ND	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	5.0	1.0	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	ug/l	
79-01-6	Trichloroethene	136	1.0	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/l	
75-01-4	Vinyl chloride	1.4	1.0	ug/l	
	m,p-Xylene	ND	1.0	ug/l	
95-47-6	o-Xylene	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	1.0	ug/l	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	045163-MW112A		
Lab Sample ID:	JC99215-1	**Date Sampled:**	11/22/19
Matrix:	AQ - Ground Water	**Date Received:**	11/25/19
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Tufts Street, Somerville, MA		

VOA MCP List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%	99%	80-120%
17060-07-0	1,2-Dichloroethane-D4	93%	93%	81-124%
2037-26-5	Toluene-D8	102%	102%	80-120%
460-00-4	4-Bromofluorobenzene	92%	92%	80-120%

(a) Result is from Run# 2
(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	045163-MW118D		
Lab Sample ID:	JC99215-2	**Date Sampled:**	11/22/19
Matrix:	AQ - Ground Water	**Date Received:**	11/25/19
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Tufts Street, Somerville, MA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2C172064.D	1	11/28/19 03:32	EH	n/a	n/a	V2C7731
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	10	ug/l	
71-43-2	Benzene	ND	0.50	ug/l	
108-86-1	Bromobenzene	ND	1.0	ug/l	
74-97-5	Bromochloromethane	ND	1.0	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	ug/l	
75-25-2	Bromoform	ND	1.0	ug/l	
74-83-9	Bromomethane	ND	2.0	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	ug/l	
104-51-8	n-Butylbenzene	ND	2.0	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	ug/l	
75-15-0	Carbon disulfide	ND	2.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	ug/l	
108-90-7	Chlorobenzene	ND	1.0	ug/l	
75-00-3	Chloroethane	ND	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	ug/l	
74-87-3	Chloromethane	ND	1.0	ug/l	
95-49-8	o-Chlorotoluene	ND	2.0	ug/l	
106-43-4	p-Chlorotoluene	ND	2.0	ug/l	
108-20-3	Di-Isopropyl ether	ND	2.0	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	ug/l	
75-34-3	1,1-Dichloroethane	33.9	1.0	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/l	
75-35-4	1,1-Dichloroethene	2.6	1.0	ug/l	
156-59-2	cis-1,2-Dichloroethene	57.3	1.0	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	ug/l	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	045163-MW118D		
Lab Sample ID:	JC99215-2	**Date Sampled:**	11/22/19
Matrix:	AQ - Ground Water	**Date Received:**	11/25/19
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Tufts Street, Somerville, MA		

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	1.0	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	ug/l	
123-91-1	1,4-Dioxane	ND	130	ug/l	
60-29-7	Ethyl Ether	ND	2.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	ug/l	
591-78-6	2-Hexanone	ND	5.0	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	ug/l	
99-87-6	p-Isopropyltoluene	ND	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	ug/l	
74-95-3	Methylene bromide	ND	1.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	ug/l	
91-20-3	Naphthalene	ND	5.0	ug/l	
103-65-1	n-Propylbenzene	ND	2.0	ug/l	
100-42-5	Styrene	ND	1.0	ug/l	
994-05-8	tert-Amyl Methyl Ether	ND	2.0	ug/l	
637-92-3	tert-Butyl Ethyl Ether	ND	2.0	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	ug/l	
127-18-4	Tetrachloroethene	40.9	1.0	ug/l	
109-99-9	Tetrahydrofuran	ND	10	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene [a]	ND	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	ug/l	
79-01-6	Trichloroethene	11.4	1.0	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/l	
75-01-4	Vinyl chloride	11.8	1.0	ug/l	
	m,p-Xylene	ND	1.0	ug/l	
95-47-6	o-Xylene	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	1.0	ug/l	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	045163-MW118D		
Lab Sample ID:	JC99215-2	**Date Sampled:**	11/22/19
Matrix:	AQ - Ground Water	**Date Received:**	11/25/19
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Tufts Street, Somerville, MA		

VOA MCP List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		80-120%
17060-07-0	1,2-Dichloroethane-D4	93%		81-124%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	95%		80-120%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	045163-MW121D		
Lab Sample ID:	JC99215-3	**Date Sampled:**	11/22/19
Matrix:	AQ - Ground Water	**Date Received:**	11/25/19
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Tufts Street, Somerville, MA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2C172065.D	1	11/28/19 04:01	EH	n/a	n/a	V2C7731
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	10	ug/l	
71-43-2	Benzene	ND	0.50	ug/l	
108-86-1	Bromobenzene	ND	1.0	ug/l	
74-97-5	Bromochloromethane	ND	1.0	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	ug/l	
75-25-2	Bromoform	ND	1.0	ug/l	
74-83-9	Bromomethane	ND	2.0	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	ug/l	
104-51-8	n-Butylbenzene	ND	2.0	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	ug/l	
75-15-0	Carbon disulfide	ND	2.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	ug/l	
108-90-7	Chlorobenzene	ND	1.0	ug/l	
75-00-3	Chloroethane	ND	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	ug/l	
74-87-3	Chloromethane	ND	1.0	ug/l	
95-49-8	o-Chlorotoluene	ND	2.0	ug/l	
106-43-4	p-Chlorotoluene	ND	2.0	ug/l	
108-20-3	Di-Isopropyl ether	ND	2.0	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	ug/l	
75-34-3	1,1-Dichloroethane	18.0	1.0	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/l	
75-35-4	1,1-Dichloroethene	8.7	1.0	ug/l	
156-59-2	cis-1,2-Dichloroethene	85.4	1.0	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	ug/l	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	045163-MW121D		
Lab Sample ID:	JC99215-3	**Date Sampled:**	11/22/19
Matrix:	AQ - Ground Water	**Date Received:**	11/25/19
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Tufts Street, Somerville, MA		

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	1.0	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	ug/l	
123-91-1	1,4-Dioxane	ND	130	ug/l	
60-29-7	Ethyl Ether	ND	2.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	ug/l	
591-78-6	2-Hexanone	ND	5.0	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	ug/l	
99-87-6	p-Isopropyltoluene	ND	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	ug/l	
74-95-3	Methylene bromide	ND	1.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	ug/l	
91-20-3	Naphthalene	ND	5.0	ug/l	
103-65-1	n-Propylbenzene	ND	2.0	ug/l	
100-42-5	Styrene	ND	1.0	ug/l	
994-05-8	tert-Amyl Methyl Ether	ND	2.0	ug/l	
637-92-3	tert-Butyl Ethyl Ether	ND	2.0	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	ug/l	
127-18-4	Tetrachloroethene	64.8	1.0	ug/l	
109-99-9	Tetrahydrofuran	ND	10	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene [a]	ND	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	ug/l	
79-01-6	Trichloroethene	40.0	1.0	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/l	
75-01-4	Vinyl chloride	4.5	1.0	ug/l	
	m,p-Xylene	ND	1.0	ug/l	
95-47-6	o-Xylene	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	1.0	ug/l	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	045163-MW121D		
Lab Sample ID:	JC99215-3	**Date Sampled:**	11/22/19
Matrix:	AQ - Ground Water	**Date Received:**	11/25/19
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Tufts Street, Somerville, MA		

VOA MCP List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		80-120%
17060-07-0	1,2-Dichloroethane-D4	93%		81-124%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	92%		80-120%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	045163-MW122		
Lab Sample ID:	JC99215-4	**Date Sampled:**	11/22/19
Matrix:	AQ - Ground Water	**Date Received:**	11/25/19
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Tufts Street, Somerville, MA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2C172056.D	5	11/27/19 23:43	EH	n/a	n/a	V2C7731
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	50	ug/l	
71-43-2	Benzene	ND	2.5	ug/l	
108-86-1	Bromobenzene	ND	5.0	ug/l	
74-97-5	Bromochloromethane	ND	5.0	ug/l	
75-27-4	Bromodichloromethane	ND	5.0	ug/l	
75-25-2	Bromoform	ND	5.0	ug/l	
74-83-9	Bromomethane	ND	10	ug/l	
78-93-3	2-Butanone (MEK)	ND	50	ug/l	
104-51-8	n-Butylbenzene	ND	10	ug/l	
135-98-8	sec-Butylbenzene	ND	10	ug/l	
98-06-6	tert-Butylbenzene	ND	10	ug/l	
75-15-0	Carbon disulfide	ND	10	ug/l	
56-23-5	Carbon tetrachloride	ND	5.0	ug/l	
108-90-7	Chlorobenzene	ND	5.0	ug/l	
75-00-3	Chloroethane	ND	5.0	ug/l	
67-66-3	Chloroform	ND	5.0	ug/l	
74-87-3	Chloromethane	ND	5.0	ug/l	
95-49-8	o-Chlorotoluene	ND	10	ug/l	
106-43-4	p-Chlorotoluene	ND	10	ug/l	
108-20-3	Di-Isopropyl ether	ND	10	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	ug/l	
124-48-1	Dibromochloromethane	ND	5.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	5.0	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	5.0	ug/l	
75-71-8	Dichlorodifluoromethane	ND	10	ug/l	
75-34-3	1,1-Dichloroethane	16.4	5.0	ug/l	
107-06-2	1,2-Dichloroethane	ND	5.0	ug/l	
75-35-4	1,1-Dichloroethene	6.9	5.0	ug/l	
156-59-2	cis-1,2-Dichloroethene	95.8	5.0	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	5.0	ug/l	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 045163-MW122
Lab Sample ID: JC99215-4
Matrix: AQ - Ground Water
Method: SW846 8260C
Project: Tufts Street, Somerville, MA

Date Sampled: 11/22/19
Date Received: 11/25/19
Percent Solids: n/a

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	5.0	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	ug/l	
594-20-7	2,2-Dichloropropane	ND	5.0	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	5.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	5.0	ug/l	
123-91-1	1,4-Dioxane	ND	630	ug/l	
60-29-7	Ethyl Ether	ND	10	ug/l	
100-41-4	Ethylbenzene	ND	5.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	10	ug/l	
591-78-6	2-Hexanone	ND	25	ug/l	
98-82-8	Isopropylbenzene	ND	5.0	ug/l	
99-87-6	p-Isopropyltoluene	ND	10	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	5.0	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	25	ug/l	
74-95-3	Methylene bromide	ND	5.0	ug/l	
75-09-2	Methylene chloride	ND	10	ug/l	
91-20-3	Naphthalene	ND	25	ug/l	
103-65-1	n-Propylbenzene	ND	10	ug/l	
100-42-5	Styrene	ND	5.0	ug/l	
994-05-8	tert-Amyl Methyl Ether	ND	10	ug/l	
637-92-3	tert-Butyl Ethyl Ether	ND	10	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0	ug/l	
127-18-4	Tetrachloroethene	961	5.0	ug/l	
109-99-9	Tetrahydrofuran	ND	50	ug/l	
108-88-3	Toluene	ND	5.0	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene [b]	ND	5.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	5.0	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	5.0	ug/l	
79-01-6	Trichloroethene	131	5.0	ug/l	
75-69-4	Trichlorofluoromethane	ND	10	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	10	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	10	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	10	ug/l	
75-01-4	Vinyl chloride	ND	5.0	ug/l	
	m,p-Xylene	ND	5.0	ug/l	
95-47-6	o-Xylene	ND	5.0	ug/l	
1330-20-7	Xylene (total)	ND	5.0	ug/l	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	045163-MW122		
Lab Sample ID:	JC99215-4	**Date Sampled:**	11/22/19
Matrix:	AQ - Ground Water	**Date Received:**	11/25/19
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Tufts Street, Somerville, MA		

VOA MCP List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		80-120%
17060-07-0	1,2-Dichloroethane-D4	93%		81-124%
2037-26-5	Toluene-D8	103%		80-120%
460-00-4	4-Bromofluorobenzene	96%		80-120%

(a) Diluted due to high concentration of target compound.
(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

Chain-of-Custody Record

GW

Laboratory: SGS Accutest

Laboratory Job # (Lab use only) JC99215

GEI Consultants
400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Information

Project Name: Tufts St
Project Number: 045163
Project Location: Somerville, MA
Project Manager: Joe Roman

Send Report to: Molly Greer
Send EDD to: labdata@geiconsultants.com

Preservative

HCl

Sample Handling

Samples Field Filtered: YES NO NA

Sampled Shipped With Ice: YES NO 3.7 3.2C

MCP PRESUMPTIVE CERTAINTY REQUIRED – YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA
If Yes, Are Drinking Water Samples Submitted? YES NO NA
If Yes, Have You Met Minimum Field QC Requirements? YES NO NA

Lab Sample Number	GEI Sample ID	Collection Date	Collection Time	Matrix	No. of Bottles	Sampler(s) Initials	VOCs 8260	Sample Specific Remarks
1	045163-MW112A	11/22/19	1020	GW	3	MEG	X	V461
2	045163-MW118D	11/22/19	1230	GW	3	MEG	X	
3	045163-MW121D	11/22/19	1130	GW	3	MEG	X	
4	045163-MW122	11/22/19	1340	GW	3	MEG	X	

Relinquished by sampler: (signature)	Date:	Time:	Received by: (signature)
1. Molly Greer	11/22/19	1500	1. GEI Fridge
2. GEI FRIDGE	11/25/19	14:09	2.
3.	11/25/19	14:10	3.
4.	11/26/19	16:35	4.

11-25-19 19:00 FedEx

Rel: FX 11/26/19 9:10 Rec:

Normal ___ Other ___
10-Day ___ 7-Day ___
5-Day ___ 3-Day ___

Before submitting rush turnaround samples, you **must** notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:

Sage 01183

Initial Assessment 3AYH

Label Verification _____

SGS-ACCUTEST MARLBOR 11/26

11/19/2019
C:\Users\mgreen\Desktop\Template Forms\COCs\Copy of Blank COC

5.1 5

JC99215: Chain of Custody
Page 1 of 2

SGS Sample Receipt Summary

Job Number: JC99215 **Client:** _____ **Project:** _____

Date / Time Received: 11/25/2019 7:00:00 PM **Delivery Method:** _____ **Airbill #'s:** _____

Cooler Temps (Raw Measured) °C: Cooler 1: (3.1);

Cooler Temps (Corrected) °C: Cooler 1: (2.9);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☑	☐
2. Trip Blank listed on COC:	☐		☑	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☑		☐	☐

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Test Strip Lot #s: pH 1-12: 229517 pH 12+: 208717 Other: (Specify) _____ _____

Comments

SM089-03
Rev. Date 12/7/17

JC99215: Chain of Custody
Page 2 of 2

Internal Sample Tracking Chronicle

GEI Consultants, Inc.

Job No: JC99215

Tufts Street, Somerville, MA
Project No: 045163

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC99215-1 Collected: 22-NOV-19 10:20 By: MEG 045163-MW112A				Received: 25-NOV-19	By: DG	
JC99215-1	SW846 8260C	28-NOV-19 02:35	EH			V8260MCP
JC99215-1	SW846 8260C	28-NOV-19 03:03	EH			V8260MCP
JC99215-2 Collected: 22-NOV-19 12:30 By: MEG 045163-MW118D				Received: 25-NOV-19	By: DG	
JC99215-2	SW846 8260C	28-NOV-19 03:32	EH			V8260MCP
JC99215-3 Collected: 22-NOV-19 11:30 By: MEG 045163-MW121D				Received: 25-NOV-19	By: DG	
JC99215-3	SW846 8260C	28-NOV-19 04:01	EH			V8260MCP
JC99215-4 Collected: 22-NOV-19 13:40 By: MEG 045163-MW122				Received: 25-NOV-19	By: DG	
JC99215-4	SW846 8260C	27-NOV-19 23:43	EH			V8260MCP

SGS Internal Chain of Custody

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA
Received: 11/25/19

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC99215-1.2	Secured Storage	Devin Gomez	11/27/19 22:25	Retrieve from Storage
JC99215-1.2	Devin Gomez	GCMS2C	11/27/19 22:25	Load on Instrument
JC99215-1.2	GCMS2C	Eddie Huang	12/02/19 11:39	Unload from Instrument
JC99215-1.2	Eddie Huang	Secured Storage	12/02/19 11:39	Return to Storage
JC99215-2.2	Secured Storage	Devin Gomez	11/27/19 22:25	Retrieve from Storage
JC99215-2.2	Devin Gomez	GCMS2C	11/27/19 22:25	Load on Instrument
JC99215-2.2	GCMS2C	Eddie Huang	12/02/19 11:39	Unload from Instrument
JC99215-2.2	Eddie Huang	Secured Storage	12/02/19 11:39	Return to Storage
JC99215-3.2	Secured Storage	Devin Gomez	11/27/19 22:25	Retrieve from Storage
JC99215-3.2	Devin Gomez	GCMS2C	11/27/19 22:25	Load on Instrument
JC99215-3.2	GCMS2C	Eddie Huang	12/02/19 11:39	Unload from Instrument
JC99215-3.2	Eddie Huang	Secured Storage	12/02/19 11:39	Return to Storage
JC99215-4.1	Secured Storage	Devin Gomez	11/27/19 22:25	Retrieve from Storage
JC99215-4.1	Devin Gomez	GCMS2C	11/27/19 22:25	Load on Instrument
JC99215-4.1	GCMS2C	Eddie Huang	12/02/19 11:39	Unload from Instrument
JC99215-4.1	Eddie Huang	Secured Storage	12/02/19 11:39	Return to Storage

MS Volatiles

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QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (BFB)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries
- Run Sequence Reports

Method Blank Summary

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2C7731-MB	2C172055.D	1	11/27/19	EH	n/a	n/a	V2C7731

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC99215-1, JC99215-2, JC99215-3, JC99215-4

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	10	ug/l	
71-43-2	Benzene	ND	0.50	ug/l	
108-86-1	Bromobenzene	ND	1.0	ug/l	
74-97-5	Bromochloromethane	ND	1.0	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	ug/l	
75-25-2	Bromoform	ND	1.0	ug/l	
74-83-9	Bromomethane	ND	2.0	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	ug/l	
104-51-8	n-Butylbenzene	ND	2.0	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	ug/l	
75-15-0	Carbon disulfide	ND	2.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	ug/l	
108-90-7	Chlorobenzene	ND	1.0	ug/l	
75-00-3	Chloroethane	ND	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	ug/l	
74-87-3	Chloromethane	ND	1.0	ug/l	
95-49-8	o-Chlorotoluene	ND	2.0	ug/l	
106-43-4	p-Chlorotoluene	ND	2.0	ug/l	
108-20-3	Di-Isopropyl ether	ND	2.0	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	ug/l	

Method Blank Summary

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2C7731-MB	2C172055.D	1	11/27/19	EH	n/a	n/a	V2C7731

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC99215-1, JC99215-2, JC99215-3, JC99215-4

CAS No.	Compound	Result	RL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	ug/l	
123-91-1	1,4-Dioxane	ND	130	ug/l	
60-29-7	Ethyl Ether	ND	2.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	ug/l	
591-78-6	2-Hexanone	ND	5.0	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	ug/l	
99-87-6	p-Isopropyltoluene	ND	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	ug/l	
74-95-3	Methylene bromide	ND	1.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	ug/l	
91-20-3	Naphthalene	ND	5.0	ug/l	
103-65-1	n-Propylbenzene	ND	2.0	ug/l	
100-42-5	Styrene	ND	1.0	ug/l	
994-05-8	tert-Amyl Methyl Ether	ND	2.0	ug/l	
637-92-3	tert-Butyl Ethyl Ether	ND	2.0	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	ug/l	
109-99-9	Tetrahydrofuran	ND	10	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	ug/l	
79-01-6	Trichloroethene	ND	1.0	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	ug/l	
	m,p-Xylene	ND	1.0	ug/l	
95-47-6	o-Xylene	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	1.0	ug/l	

Method Blank Summary

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2C7731-MB	2C172055.D	1	11/27/19	EH	n/a	n/a	V2C7731

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC99215-1, JC99215-2, JC99215-3, JC99215-4

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	96%	80-120%
17060-07-0	1,2-Dichloroethane-D4	93%	81-124%
2037-26-5	Toluene-D8	102%	80-120%
460-00-4	4-Bromofluorobenzene	93%	80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

Blank Spike/Blank Spike Duplicate Summary

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2C7731-BS	2C172052.D	1	11/27/19	EH	n/a	n/a	V2C7731
V2C7731-BSD	2C172053.D	1	11/27/19	EH	n/a	n/a	V2C7731

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC99215-1, JC99215-2, JC99215-3, JC99215-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	200	178	89	192	96	8	42-150/22
71-43-2	Benzene	50	49.6	99	49.6	99	0	80-120/20
108-86-1	Bromobenzene	50	51.6	103	52.0	104	1	82-118/20
74-97-5	Bromochloromethane	50	50.7	101	51.1	102	1	84-121/20
75-27-4	Bromodichloromethane	50	50.2	100	50.3	101	0	83-120/20
75-25-2	Bromoform	50	57.4	115	57.7	115	1	76-129/20
74-83-9	Bromomethane	50	48.7	97	52.0	104	7	57-138/20
78-93-3	2-Butanone (MEK)	200	186	93	196	98	5	64-137/20
104-51-8	n-Butylbenzene	50	55.4	111	55.8	112	1	81-123/20
135-98-8	sec-Butylbenzene	50	54.5	109	55.3	111	1	84-121/20
98-06-6	tert-Butylbenzene	50	56.2	112	56.2	112	0	83-122/20
75-15-0	Carbon disulfide	50	52.1	104	54.7	109	5	64-137/20
56-23-5	Carbon tetrachloride	50	51.4	103	53.5	107	4	75-135/20
108-90-7	Chlorobenzene	50	53.0	106	52.8	106	0	84-117/20
75-00-3	Chloroethane	50	49.2	98	51.9	104	5	63-132/20
67-66-3	Chloroform	50	44.5	89	45.4	91	2	80-119/20
74-87-3	Chloromethane	50	43.4	87	46.0	92	6	46-136/20
95-49-8	o-Chlorotoluene	50	52.7	105	53.4	107	1	84-118/20
106-43-4	p-Chlorotoluene	50	50.3	101	49.9	100	1	83-116/20
108-20-3	Di-Isopropyl ether	50	44.8	90	46.3	93	3	73-128/20
96-12-8	1,2-Dibromo-3-chloropropane	50	48.4	97	51.2	102	6	72-127/20
124-48-1	Dibromochloromethane	50	55.1	110	54.6	109	1	80-123/20
106-93-4	1,2-Dibromoethane	50	51.7	103	51.9	104	0	84-117/20
95-50-1	1,2-Dichlorobenzene	50	52.4	105	52.8	106	1	84-119/20
541-73-1	1,3-Dichlorobenzene	50	51.1	102	51.0	102	0	81-117/20
106-46-7	1,4-Dichlorobenzene	50	52.6	105	52.5	105	0	82-117/20
75-71-8	Dichlorodifluoromethane	50	41.8	84	44.1	88	5	36-149/20
75-34-3	1,1-Dichloroethane	50	46.8	94	47.2	94	1	79-120/20
107-06-2	1,2-Dichloroethane	50	43.0	86	42.7	85	1	78-126/20
75-35-4	1,1-Dichloroethene	50	50.4	101	52.5	105	4	69-126/20
156-59-2	cis-1,2-Dichloroethene	50	47.7	95	48.8	98	2	80-120/20
156-60-5	trans-1,2-Dichloroethene	50	49.7	99	50.4	101	1	76-120/20
78-87-5	1,2-Dichloropropane	50	46.6	93	47.4	95	2	82-121/20
142-28-9	1,3-Dichloropropane	50	47.0	94	46.8	94	0	83-115/20
594-20-7	2,2-Dichloropropane	50	47.9	96	50.2	100	5	65-133/20
563-58-6	1,1-Dichloropropene	50	47.1	94	47.1	94	0	80-121/20

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2C7731-BS	2C172052.D	1	11/27/19	EH	n/a	n/a	V2C7731
V2C7731-BSD	2C172053.D	1	11/27/19	EH	n/a	n/a	V2C7731

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC99215-1, JC99215-2, JC99215-3, JC99215-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	50	50.7	101	50.9	102	0	83-120/20
10061-02-6	trans-1,3-Dichloropropene	50	51.8	104	51.3	103	1	82-121/20
123-91-1	1,4-Dioxane	1250	1370	110	1360	109	1	52-147/20
60-29-7	Ethyl Ether	50	49.0	98	49.3	99	1	78-124/20
100-41-4	Ethylbenzene	50	50.8	102	50.7	101	0	80-120/20
87-68-3	Hexachlorobutadiene	50	52.8	106	53.6	107	2	75-129/20
591-78-6	2-Hexanone	200	182	91	189	95	4	65-132/20
98-82-8	Isopropylbenzene	50	53.0	106	53.6	107	1	83-120/20
99-87-6	p-Isopropyltoluene	50	55.8	112	56.2	112	1	83-122/20
1634-04-4	Methyl Tert Butyl Ether	50	47.5	95	50.0	100	5	80-119/20
108-10-1	4-Methyl-2-pentanone(MIBK)	200	180	90	190	95	5	71-131/20
74-95-3	Methylene bromide	50	48.6	97	49.1	98	1	85-120/20
75-09-2	Methylene chloride	50	48.3	97	50.4	101	4	77-120/20
91-20-3	Naphthalene	50	59.3	119	62.3	125	5	73-131/20
103-65-1	n-Propylbenzene	50	50.8	102	50.9	102	0	82-119/20
100-42-5	Styrene	50	52.9	106	52.8	106	0	82-122/20
994-05-8	tert-Amyl Methyl Ether	50	52.2	104	54.8	110	5	81-124/20
637-92-3	tert-Butyl Ethyl Ether	50	49.9	100	52.1	104	4	79-128/20
630-20-6	1,1,1,2-Tetrachloroethane	50	54.3	109	54.5	109	0	82-121/20
79-34-5	1,1,2,2-Tetrachloroethane	50	52.3	105	53.0	106	1	76-119/20
127-18-4	Tetrachloroethene	50	53.0	106	51.8	104	2	70-131/20
109-99-9	Tetrahydrofuran	50	44.2	88	46.3	93	5	64-129/20
108-88-3	Toluene	50	52.2	104	51.9	104	1	80-120/20
87-61-6	1,2,3-Trichlorobenzene	50	59.5	119	61.5	123	3	76-134/20
120-82-1	1,2,4-Trichlorobenzene	50	62.1	124	63.9	128	3	79-132/20
71-55-6	1,1,1-Trichloroethane	50	49.3	99	50.9	102	3	81-128/20
79-00-5	1,1,2-Trichloroethane	50	49.8	100	49.9	100	0	83-118/20
79-01-6	Trichloroethene	50	49.7	99	49.9	100	0	80-120/20
75-69-4	Trichlorofluoromethane	50	48.3	97	50.5	101	4	64-136/20
96-18-4	1,2,3-Trichloropropane	50	47.9	96	48.0	96	0	79-120/20
95-63-6	1,2,4-Trimethylbenzene	50	52.9	106	53.1	106	0	84-120/20
108-67-8	1,3,5-Trimethylbenzene	50	52.6	105	53.1	106	1	83-119/20
75-01-4	Vinyl chloride	50	48.7	97	51.9	104	6	51-135/20
	m,p-Xylene	100	103	103	104	104	1	80-120/20
95-47-6	o-Xylene	50	52.5	105	53.0	106	1	80-120/20
1330-20-7	Xylene (total)	150	156	104	157	105	1	80-120/20

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2C7731-BS	2C172052.D	1	11/27/19	EH	n/a	n/a	V2C7731
V2C7731-BSD	2C172053.D	1	11/27/19	EH	n/a	n/a	V2C7731

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC99215-1, JC99215-2, JC99215-3, JC99215-4

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	99%	100%	80-120%
17060-07-0	1,2-Dichloroethane-D4	87%	88%	81-124%
2037-26-5	Toluene-D8	104%	103%	80-120%
460-00-4	4-Bromofluorobenzene	100%	99%	80-120%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC99215-4MS	2C172057.D	5	11/28/19	EH	n/a	n/a	V2C7731
JC99215-4MSD	2C172058.D	5	11/28/19	EH	n/a	n/a	V2C7731
JC99215-4 [a]	2C172056.D	5	11/27/19	EH	n/a	n/a	V2C7731

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC99215-1, JC99215-2, JC99215-3, JC99215-4

CAS No.	Compound	JC99215-4 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND		1000	885	89	1000	860	86	3	34-149/17
71-43-2	Benzene	ND		250	237	95	250	227	91	4	54-136/10
108-86-1	Bromobenzene	ND		250	248	99	250	245	98	1	78-122/11
74-97-5	Bromochloromethane	ND		250	247	99	250	239	96	3	79-124/11
75-27-4	Bromodichloromethane	ND		250	238	95	250	233	93	2	79-124/11
75-25-2	Bromoform	ND		250	269	108	250	269	108	0	71-130/11
74-83-9	Bromomethane	ND		250	244	98	250	223	89	9	53-142/14
78-93-3	2-Butanone (MEK)	ND		1000	902	90	1000	905	91	0	54-142/15
104-51-8	n-Butylbenzene	ND		250	262	105	250	258	103	2	73-133/12
135-98-8	sec-Butylbenzene	ND		250	260	104	250	254	102	2	76-132/12
98-06-6	tert-Butylbenzene	ND		250	265	106	250	260	104	2	76-131/12
75-15-0	Carbon disulfide	ND		250	257	103	250	238	95	8	59-145/17
56-23-5	Carbon tetrachloride	ND		250	252	101	250	239	96	5	70-143/12
108-90-7	Chlorobenzene	ND		250	249	100	250	245	98	2	78-123/10
75-00-3	Chloroethane	ND		250	242	97	250	226	90	7	57-141/14
67-66-3	Chloroform	ND		250	217	87	250	209	84	4	76-123/11
74-87-3	Chloromethane	ND		250	222	89	250	203	81	9	43-141/16
95-49-8	o-Chlorotoluene	ND		250	254	102	250	250	100	2	78-124/11
106-43-4	p-Chlorotoluene	ND		250	238	95	250	234	94	2	77-122/11
108-20-3	Di-Isopropyl ether	ND		250	221	88	250	211	84	5	68-130/11
96-12-8	1,2-Dibromo-3-chloropropane	ND		250	231	92	250	239	96	3	66-130/13
124-48-1	Dibromochloromethane	ND		250	258	103	250	256	102	1	76-125/11
106-93-4	1,2-Dibromoethane	ND		250	243	97	250	241	96	1	78-119/11
95-50-1	1,2-Dichlorobenzene	ND		250	248	99	250	246	98	1	77-123/11
541-73-1	1,3-Dichlorobenzene	ND		250	241	96	250	240	96	0	76-122/11
106-46-7	1,4-Dichlorobenzene	ND		250	251	100	250	247	99	2	76-122/11
75-71-8	Dichlorodifluoromethane	ND		250	223	89	250	199	80	11	31-159/16
75-34-3	1,1-Dichloroethane	16.4		250	238	89	250	230	85	3	73-126/11
107-06-2	1,2-Dichloroethane	ND		250	206	82	250	203	81	1	72-131/11
75-35-4	1,1-Dichloroethene	6.9		250	255	99	250	236	92	8	63-136/14
156-59-2	cis-1,2-Dichloroethene	95.8		250	310	86	250	297	80	4	60-136/11
156-60-5	trans-1,2-Dichloroethene	ND		250	243	97	250	230	92	5	70-126/11
78-87-5	1,2-Dichloropropane	ND		250	222	89	250	217	87	2	78-124/10
142-28-9	1,3-Dichloropropane	ND		250	212	85	250	211	84	0	78-118/11
594-20-7	2,2-Dichloropropane	ND		250	242	97	250	227	91	6	59-141/14
563-58-6	1,1-Dichloropropene	ND		250	222	89	250	216	86	3	75-130/11

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC99215-4MS	2C172057.D	5	11/28/19	EH	n/a	n/a	V2C7731
JC99215-4MSD	2C172058.D	5	11/28/19	EH	n/a	n/a	V2C7731
JC99215-4 [a]	2C172056.D	5	11/27/19	EH	n/a	n/a	V2C7731

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC99215-1, JC99215-2, JC99215-3, JC99215-4

CAS No.	Compound	JC99215-4 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	ND		250	246	98	250	241	96	2	79-123/11
10061-02-6	trans-1,3-Dichloropropene	ND		250	245	98	250	246	98	0	77-123/11
123-91-1	1,4-Dioxane	ND		6250	6200	99	6250	6380	102	3	49-146/26
60-29-7	Ethyl Ether	ND		250	239	96	250	231	92	3	72-127/12
100-41-4	Ethylbenzene	ND		250	239	96	250	234	94	2	51-140/20
87-68-3	Hexachlorobutadiene	ND		250	247	99	250	241	96	2	64-141/14
591-78-6	2-Hexanone	ND		1000	790	79	1000	808	81	2	56-139/14
98-82-8	Isopropylbenzene	ND		250	252	101	250	244	98	3	75-129/11
99-87-6	p-Isopropyltoluene	ND		250	266	106	250	258	103	3	76-131/12
1634-04-4	Methyl Tert Butyl Ether	ND		250	239	96	250	228	91	5	72-123/11
108-10-1	4-Methyl-2-pentanone(MIBK)	ND		1000	879	88	1000	862	86	2	66-136/13
74-95-3	Methylene bromide	ND		250	233	93	250	230	92	1	81-121/11
75-09-2	Methylene chloride	ND		250	240	96	250	227	91	6	73-125/13
91-20-3	Naphthalene	ND		250	287	115	250	290	116	1	62-141/13
103-65-1	n-Propylbenzene	ND		250	243	97	250	238	95	2	68-133/11
100-42-5	Styrene	ND		250	249	100	250	246	98	1	75-129/11
994-05-8	tert-Amyl Methyl Ether	ND		250	260	104	250	245	98	6	75-127/11
637-92-3	tert-Butyl Ethyl Ether	ND		250	256	102	250	237	95	8	74-130/11
630-20-6	1,1,1,2-Tetrachloroethane	ND		250	260	104	250	255	102	2	77-124/11
79-34-5	1,1,2,2-Tetrachloroethane	ND		250	249	100	250	251	100	1	71-122/11
127-18-4	Tetrachloroethene	961		250	965	2* [b]	250	939	-9* [b]	3	61-139/11
109-99-9	Tetrahydrofuran	ND		250	216	86	250	214	86	1	54-129/14
108-88-3	Toluene	ND		250	246	98	250	240	96	2	60-135/10
87-61-6	1,2,3-Trichlorobenzene	ND		250	288	115	250	284	114	1	70-138/13
120-82-1	1,2,4-Trichlorobenzene	ND		250	299	120	250	292	117	2	72-137/13
71-55-6	1,1,1-Trichloroethane	ND		250	242	97	250	228	91	6	74-138/12
79-00-5	1,1,2-Trichloroethane	ND		250	233	93	250	235	94	1	78-121/11
79-01-6	Trichloroethene	131		250	333	81	250	320	76	4	62-141/10
75-69-4	Trichlorofluoromethane	ND		250	239	96	250	221	88	8	57-149/14
96-18-4	1,2,3-Trichloropropane	ND		250	230	92	250	231	92	0	74-122/11
95-63-6	1,2,4-Trimethylbenzene	ND		250	252	101	250	248	99	2	54-143/10
108-67-8	1,3,5-Trimethylbenzene	ND		250	252	101	250	247	99	2	67-133/11
75-01-4	Vinyl chloride	ND		250	249	100	250	228	91	9	43-146/15
	m,p-Xylene	ND		500	489	98	500	478	96	2	50-144/20
95-47-6	o-Xylene	ND		250	248	99	250	245	98	1	63-134/10
1330-20-7	Xylene (total)	ND		750	737	98	750	723	96	2	56-139/20

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC99215-4MS	2C172057.D	5	11/28/19	EH	n/a	n/a	V2C7731
JC99215-4MSD	2C172058.D	5	11/28/19	EH	n/a	n/a	V2C7731
JC99215-4 [a]	2C172056.D	5	11/27/19	EH	n/a	n/a	V2C7731

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC99215-1, JC99215-2, JC99215-3, JC99215-4

CAS No.	Surrogate Recoveries	MS	MSD	JC99215-4	Limits
1868-53-7	Dibromofluoromethane	101%	99%	97%	80-120%
17060-07-0	1,2-Dichloroethane-D4	88%	86%	93%	81-124%
2037-26-5	Toluene-D8	103%	104%	103%	80-120%
460-00-4	4-Bromofluorobenzene	100%	101%	96%	80-120%

(a) Diluted due to high concentration of target compound.
(b) Outside control limits due to high level in sample relative to spike amount.

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Sample: V2C7685-BFB
Lab File ID: 2C170983.D
Instrument ID: GCMS2C
Injection Date: 10/30/19
Injection Time: 18:00

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	29408	18.8		Pass
75	30.0 - 60.0% of mass 95	74125	47.3		Pass
95	Base peak, 100% relative abundance	156821	100.0		Pass
96	5.0 - 9.0% of mass 95	10857	6.92		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	149149	95.1		Pass
175	5.0 - 9.0% of mass 174	11836	7.55	(7.94) [a]	Pass
176	95.0 - 101.0% of mass 174	146490	93.4	(98.2) [a]	Pass
177	5.0 - 9.0% of mass 176	9755	6.22	(6.66) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V2C7685-IC7685	2C170984.D	10/30/19	18:29	00:29	Initial cal 0.2
V2C7685-IC7685	2C170985.D	10/30/19	18:57	00:57	Initial cal 0.5
V2C7685-IC7685	2C170986.D	10/30/19	19:26	01:26	Initial cal 1
V2C7685-IC7685	2C170987.D	10/30/19	19:54	01:54	Initial cal 2
V2C7685-IC7685	2C170988.D	10/30/19	20:23	02:23	Initial cal 4
V2C7685-IC7685	2C170989.D	10/30/19	20:52	02:52	Initial cal 8
V2C7685-IC7685	2C170990.D	10/30/19	21:20	03:20	Initial cal 20
V2C7685-ICC7685	2C170991.D	10/30/19	21:49	03:49	Initial cal 50
V2C7685-IC7685	2C170992.D	10/30/19	22:18	04:18	Initial cal 100
V2C7685-IC7685	2C170993.D	10/30/19	22:46	04:46	Initial cal 200
V2C7685-ICV7685	2C170996.D	10/31/19	00:12	06:12	Initial cal verification 50
V2C7685-ICV7685	2C170997.D	10/31/19	00:40	06:40	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Sample: V2C7731-BFB
Lab File ID: 2C172051.D
Instrument ID: GCMS2C
Injection Date: 11/27/19
Injection Time: 21:20

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	22803	16.2		Pass
75	30.0 - 60.0% of mass 95	61896	43.9		Pass
95	Base peak, 100% relative abundance	140835	100.0		Pass
96	5.0 - 9.0% of mass 95	9449	6.71		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	145725	103.5		Pass
175	5.0 - 9.0% of mass 174	11094	7.88	(7.61) [a]	Pass
176	95.0 - 101.0% of mass 174	143789	102.1	(98.7) [a]	Pass
177	5.0 - 9.0% of mass 176	9445	6.71	(6.57) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V2C7731-CC7685	2C172051.D	11/27/19	21:20	00:00	Continuing cal 50
V2C7731-BS	2C172052.D	11/27/19	21:48	00:28	Blank Spike
V2C7731-BSD	2C172053.D	11/27/19	22:17	00:57	Blank Spike Duplicate
V2C7731-MB	2C172055.D	11/27/19	23:14	01:54	Method Blank
JC99215-4	2C172056.D	11/27/19	23:43	02:23	045163-MW122
JC99215-4MS	2C172057.D	11/28/19	00:11	02:51	Matrix Spike
JC99215-4MSD	2C172058.D	11/28/19	00:40	03:20	Matrix Spike Duplicate
ZZZZZZ	2C172060.D	11/28/19	01:37	04:17	(unrelated sample)
ZZZZZZ	2C172061.D	11/28/19	02:06	04:46	(unrelated sample)
JC99215-1	2C172062.D	11/28/19	02:35	05:15	045163-MW112A
JC99215-1	2C172063.D	11/28/19	03:03	05:43	045163-MW112A
JC99215-2	2C172064.D	11/28/19	03:32	06:12	045163-MW118D
JC99215-3	2C172065.D	11/28/19	04:01	06:41	045163-MW121D
ZZZZZZ	2C172066.D	11/28/19	04:29	07:09	(unrelated sample)
ZZZZZZ	2C172067.D	11/28/19	04:58	07:38	(unrelated sample)
ZZZZZZ	2C172068.D	11/28/19	05:27	08:07	(unrelated sample)
ZZZZZZ	2C172069.D	11/28/19	05:55	08:35	(unrelated sample)
ZZZZZZ	2C172070.D	11/28/19	06:24	09:04	(unrelated sample)
ZZZZZZ	2C172071.D	11/28/19	06:53	09:33	(unrelated sample)
ZZZZZZ	2C172072.D	11/28/19	07:21	10:01	(unrelated sample)
ZZZZZZ	2C172073.D	11/28/19	07:50	10:30	(unrelated sample)
ZZZZZZ	2C172074.D	11/28/19	08:19	10:59	(unrelated sample)

Internal Standard Area Summary

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Check Std:	V2C7731-CC7685	**Injection Date:**	11/27/19
Lab File ID:	2C172051.D	**Injection Time:**	21:20
Instrument ID:	GCMS2C	**Method:**	SW846 8260C

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	351466	8.19	375997	10.65	552086	11.59	472299	14.58	270855	16.76
Upper Limit [a]	702932	8.69	751994	11.15	1104172	12.09	944598	15.08	541710	17.26
Lower Limit [b]	175733	7.69	187999	10.15	276043	11.09	236150	14.08	135428	16.26

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
V2C7731-BS	329892	8.19	371951	10.65	545735	11.59	464866	14.58	267808	16.76
V2C7731-BSD	337927	8.18	350736	10.65	521367	11.59	453706	14.58	262922	16.76
V2C7731-MB	337373	8.19	387755	10.65	563614	11.59	486149	14.58	293579	16.76
JC99215-4 [c]	367128	8.19	416888	10.65	604965	11.59	511781	14.58	303709	16.76
JC99215-4MS	325707	8.19	353263	10.65	523183	11.59	455415	14.58	259259	16.76
JC99215-4MSD	341001	8.19	370223	10.65	551920	11.59	468061	14.58	266324	16.76
ZZZZZZ	338582	8.18	388547	10.65	570380	11.59	490472	14.58	296518	16.76
ZZZZZZ	360794	8.19	399830	10.65	580555	11.59	498601	14.58	297285	16.76
JC99215-1	331974	8.19	364345	10.65	538053	11.59	462808	14.58	284088	16.76
JC99215-1	344178	8.18	367428	10.65	540184	11.59	469080	14.58	285348	16.76
JC99215-2	351000	8.20	410618	10.65	599259	11.59	510601	14.58	298580	16.76
JC99215-3	331935	8.19	384998	10.65	563119	11.59	484138	14.58	292971	16.76
ZZZZZZ	333833	8.18	376994	10.65	556665	11.59	476156	14.58	285882	16.76
ZZZZZZ	343878	8.19	371385	10.65	546433	11.59	473805	14.58	285465	16.76
ZZZZZZ	331666	8.19	374159	10.65	540215	11.59	471126	14.58	278160	16.76
ZZZZZZ	378335	8.18	353194	10.65	518084	11.59	467599	14.58	261545	16.76
ZZZZZZ	340698	8.19	369227	10.65	540192	11.59	466865	14.58	281804	16.76
ZZZZZZ	324335	8.17	365686	10.65	533844	11.59	460975	14.58	287079	16.76
ZZZZZZ	363372	8.18	381286	10.65	557187	11.59	484721	14.58	297919	16.76
ZZZZZZ	349664	8.19	391809	10.65	576945	11.59	494214	14.58	296824	16.76
ZZZZZZ	337111	8.18	375268	10.65	555281	11.59	481555	14.58	288927	16.76

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
(c) Diluted due to high concentration of target compound.

Surrogate Recovery Summary

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Method: SW846 8260C **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
JC99215-1	2C172063.D	99	93	102	92
JC99215-1	2C172062.D	99	93	102	92
JC99215-2	2C172064.D	97	93	102	95
JC99215-3	2C172065.D	98	93	102	92
JC99215-4	2C172056.D	97	93	103	96
JC99215-4MS	2C172057.D	101	88	103	100
JC99215-4MSD	2C172058.D	99	86	104	101
V2C7731-BS	2C172052.D	99	87	104	100
V2C7731-BSD	2C172053.D	100	88	103	99
V2C7731-MB	2C172055.D	96	93	102	93

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	80-120%
S2 = 1,2-Dichloroethane-D4	81-124%
S3 = Toluene-D8	80-120%
S4 = 4-Bromofluorobenzene	80-120%

Initial Calibration Summary

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Sample: V2C7685-ICC7685
Lab FileID: 2C170991.D

Response Factor Report Instrument #1

Method : C:\MSDCHEM\1\METHODS\M2C7685.M (RTE Integrator)
Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
Last Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

Calibration Files
1 =2C170986.D 2 =2C170987.D 100 =2C170992.D 50 =2C170991.D
20 =2C170990.D 200 =2C170993.D 0.5 =2C170985.D 4 =2C170988.D
8 =2C170989.D 0.2 =2C170984.D = =

Compound	1	2	100	50	20	200	0.5	4	8	0.2	Avg	%RSD
1) I Tert Butyl Alcohol-d9	----------ISTD----------											
2) ethanol											0.000#	-1.00
3) tertiary butyl alcohol	0.962	1.235	1.132	1.090	1.072	1.140		1.170	1.051		1.106	7.46
4) 1,4-dioxane			0.083	0.097	0.095	0.100	0.095		0.089	0.099	0.094	6.57
5) I pentafluorobenzene	----------ISTD----------											
6) chlorodifluoromethane	1.012	1.016	0.989	1.017	0.971	0.880	1.097	1.016	0.959		0.995	5.85
7) dichlorodifluoromethane	0.994	1.024	1.112	1.116	1.031	1.010	0.945	1.004	1.019	0.834	1.009	7.94
8) chloromethane	1.172	1.115	1.101	1.099	1.063	0.997	1.228	1.087	1.076	1.264	1.120	7.12
9) vinyl chloride	0.954	1.016	1.029	1.047	0.982	0.931	1.055	0.997	0.992	0.946	0.995	4.27
10) 1,3-butadiene	0.788	0.735	0.683	0.703	0.694	0.615		0.715	0.690		0.703	6.96
11) bromomethane	0.731	0.679	0.657	0.646	0.622	0.609	0.757	0.661	0.648		0.668	7.22
12) chloroethane	0.498	0.493	0.492	0.481	0.467	0.467		0.484	0.476		0.482	2.43
13) trichlorofluoromethane	0.975	0.996	1.034	1.028	0.978	0.965	0.976	1.001	0.993		0.994	2.42
14) vinyl bromide	0.459	0.505	0.532	0.520	0.488	0.499		0.488	0.482		0.497	4.60
15) ethyl ether	0.317	0.322	0.324	0.314	0.318	0.309	0.275	0.320	0.295		0.310	5.14
16) 2-chloropropane	1.273	1.247	1.107	1.105	1.081	1.015		1.101	1.051		1.123	8.08
17) acrolein			0.171	0.164	0.164	0.154		0.124	0.142		0.153	11.36
18) freon 113	0.539	0.517	0.503	0.505	0.495	0.464	0.566	0.540	0.510		0.515	5.77
19) 1,1-dichloroethene	0.603	0.591	0.540	0.548	0.546	0.499	0.589	0.592	0.549		0.562	6.05
20) acetone	0.078	0.082	0.083	0.082	0.083	0.075		0.083	0.083		0.081	3.43
21) iodomethane	0.848	0.880	0.897	0.874	0.846	0.843	0.866	0.861	0.832		0.861	2.39
22) acetonitrile											0.000#	-1.00
23) carbon disulfide												

Initial Calibration Summary

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Sample: V2C7685-ICC7685
Lab FileID: 2C170991.D

	1.635	1.581	1.614	1.608	1.548	1.506	1.607	1.568	1.529		1.577	2.72
24)	methylene chloride											
	0.740	0.688	0.632	0.617	0.622	0.589	0.689	0.650	0.607		0.648	7.46
25)	methyl acetate											
		0.809	0.714	0.727	0.713	0.661		0.675	0.670		0.710	7.13
26)	methyl tert butyl ether											
	1.686	1.750	1.727	1.679	1.669	1.614	1.656	1.732	1.633	1.930	1.708	5.23
27)	trans-1,2-dichloroethene											
	0.587	0.585	0.519	0.523	0.529	0.489	0.587	0.542	0.518	0.537	0.542	6.27
28)	hexane											
	0.438	0.430	0.398	0.405	0.385	0.375	0.377	0.399	0.394	0.356	0.396	6.30
29)	di-isopropyl ether											
	1.906	1.947	1.866	1.881	1.895	1.710	1.893	1.913	1.836	2.140	1.899	5.60
30)	1,1-dichloroethane											
	1.008	1.021	0.900	0.922	0.925	0.841	0.942	0.986	0.912	0.995	0.945	6.00
31)	chloroprene											
	0.788	0.815	0.793	0.804	0.780	0.756	0.715	0.792	0.757	0.741	0.774	4.00
32)	acrylonitrile											
	0.306	0.339	0.357	0.333	0.339	0.325		0.330	0.312		0.330	4.90
33)	vinyl acetate											
		0.120	0.114	0.111	0.105			0.114	0.108		0.112	4.79
34)	ethyl tert-butyl ether											
	1.692	1.659	1.772	1.692	1.706	1.654	1.604	1.665	1.586	1.649	1.668	3.16
35)	2-butanone											
	0.095	0.104	0.103	0.099	0.102	0.095		0.099	0.098		0.099	3.39
36)	ethyl acetate											
		0.127	0.134	0.147	0.115			0.130	0.133		0.131	7.75
37)	2,2-dichloropropane											
	0.745	0.788	0.684	0.693	0.691	0.634	0.787	0.748	0.706	0.719	0.719	6.72
38)	cis-1,2-dichloroethene											
	0.648	0.611	0.544	0.549	0.565	0.514	0.682	0.615	0.571		0.589	9.22
39)	propionitrile											
	0.147	0.156	0.133	0.132	0.142	0.117	0.123	0.150	0.143	0.136	0.138	8.84
40)	bromochloromethane											
	0.316	0.327	0.301	0.301	0.302	0.285	0.280	0.316	0.301		0.303	4.91
41)	tetrahydrofuran											
		0.111	0.108	0.114	0.102			0.123	0.116		0.112	6.40
42)	chloroform											
	1.032	1.067	0.910	0.920	0.925	0.854	1.105	0.977	0.922	1.131	0.984	9.53
43)	t-butyl formate											
	0.379	0.412	0.490	0.462	0.435	0.443		0.400	0.402		0.428	8.56
44)	dibromofluoromethane (s)											
	0.458	0.449	0.463	0.462	0.460	0.469	0.451	0.452	0.458	0.447	0.457	1.53
45)	methacrylonitrile											
	0.271	0.274	0.309	0.297	0.293	0.290	0.234	0.293	0.279		0.282	7.64
46)	1,1,1-trichloroethane											
	0.841	0.830	0.865	0.849	0.823	0.817	0.850	0.832	0.788	0.825	0.832	2.57
47)	cyclohexane											
	0.820	0.805	0.800	0.805	0.775	0.728	0.805	0.770	0.782	0.925	0.801	6.30
48)	1,1-dichloropropene											
	0.673	0.715	0.622	0.636	0.638	0.588	0.688	0.697	0.644	0.777	0.668	8.09
49)	carbon tetrachloride											
	0.719	0.726	0.696	0.685	0.665	0.662	0.642	0.700	0.663	0.541	0.670	7.87
50)	isobutyl alcohol											
											0.000#	-1.00
51)	I 1,4-difluorobenzene	----------ISTD----------										
52)	1,2-dichloroethane-d4 (s)											
	0.386	0.381	0.339	0.351	0.368	0.323	0.388	0.382	0.382	0.388	0.369	6.27
53)	n-butyl alcohol											

	0.021	0.022	0.024	0.022	0.024	0.021		0.021	0.022		0.022	5.72
54)	tert-amyl alcohol												
			0.030	0.029	0.033	0.026		0.035	0.035		0.031	11.72
55)	iso-octane												
	1.176	1.199	1.137	1.110	1.107	1.040	1.108	1.135	1.118	1.134	1.126	3.81
56)	benzene												
	1.364	1.394	1.248	1.266	1.287	1.149	1.342	1.360	1.261	1.495	1.317	7.24
57)	tert-amyl methyl ether												
	0.241	0.254	0.235	0.226	0.229	0.220	0.225	0.245	0.229		0.234	4.69
58)	heptane												
	0.258	0.254	0.239	0.238	0.233	0.223	0.235	0.246	0.239		0.241	4.43
59)	isopropyl acetate												
			0.098	0.095	0.090	0.095	0.088		0.091	0.089		0.092	4.21
60)	1,2-dichloroethane												
	0.578	0.560	0.455	0.458	0.478	0.415		0.527	0.484		0.495	11.30
61)	ethyl acrylate												
	0.548	0.575	0.594	0.576	0.595	0.527	0.518	0.570	0.553		0.562	4.85
62)	trichloroethene												
	0.349	0.364	0.320	0.328	0.332	0.296	0.364	0.346	0.329	0.369	0.340	6.77
63)	2-nitropropane												
			0.129	0.116	0.105	0.125		0.115	0.106		0.116	8.49
64)	2-chloroethyl vinyl ether												
	0.199	0.211	0.221	0.217	0.223	0.200	0.186	0.217	0.210	0.194	0.208	5.95
65)	methyl methacrylate												
			0.100	0.117	0.108	0.113	0.109		0.100	0.102		0.107	6.07
66)	1,2-dichloropropane												
	0.383	0.358	0.322	0.331	0.343	0.291	0.351	0.367	0.339	0.403	0.349	9.11
67)	dibromomethane												
	0.252	0.250	0.241	0.238	0.241	0.219	0.256	0.245	0.233	0.220	0.240	5.21
68)	methylcyclohexane												
	0.584	0.625	0.574	0.574	0.580	0.527	0.597	0.605	0.579	0.525	0.577	5.42
69)	bromodichloromethane												
	0.457	0.465	0.487	0.474	0.470	0.448	0.422	0.462	0.447	0.452	0.458	3.89
70)	epichlorohydrin												
	0.061	0.059	0.065	0.061	0.063	0.059		0.064	0.061		0.062	3.88
71)	cis-1,3-dichloropropene												
	0.506	0.563	0.569	0.555	0.553	0.522	0.504	0.548	0.514	0.538	0.537	4.47
72)	4-methyl-2-pentanone												
	0.212	0.215	0.194	0.191	0.208	0.170	0.178	0.215	0.204	0.215	0.200	8.08
73)	3-methyl-1-butanol												
	0.038	0.037	0.036	0.035	0.039	0.030		0.036	0.037		0.036	7.53
74)	I chlorobenzene-d5	----------	ISTD	----------									
75)	toluene-d8 (s)												
	1.160	1.162	1.245	1.199	1.168	1.274	1.165	1.172	1.158	1.150	1.185	3.52
76)	toluene												
	0.844	0.905	0.891	0.871	0.844	0.866	0.834	0.859	0.819	0.932	0.866	4.00
77)	ethyl methacrylate												
	0.447	0.496	0.547	0.519	0.515	0.514	0.429	0.479	0.464		0.490	7.80
78)	trans-1,3-dichloropropene												
	0.488	0.547	0.593	0.571	0.559	0.559	0.457	0.546	0.506	0.516	0.534	7.78
79)	1,1,2-trichloroethane												
	0.296	0.324	0.327	0.316	0.315	0.306	0.330	0.327	0.296	0.317	0.316	3.98
80)	2-hexanone												
	0.224	0.233	0.220	0.214	0.227	0.197	0.188	0.234	0.223	0.209	0.217	6.84
81)	tetrachloroethene												
	0.366	0.384	0.337	0.329	0.329	0.320	0.363	0.359	0.337	0.330	0.345	6.13
82)	1,3-dichloropropane												
	0.595	0.621	0.543	0.533	0.552	0.518	0.599	0.607	0.533		0.567	6.83
83)	butyl acetate												

```
      0.308 0.340 0.332 0.310 0.321 0.311 0.294 0.318 0.306        0.316    4.44
 84)  dibromochloromethane
      0.372 0.412 0.476 0.436 0.406 0.461 0.358 0.382 0.367        0.408   10.37
 85)  1,2-dibromoethane
      0.454 0.467 0.506 0.482 0.477 0.479 0.432 0.465 0.439 0.467  0.467    4.61
 86)  n-butyl ether
      1.312 1.381 1.498 1.462 1.411 1.411 1.319 1.352 1.315        1.385    4.82
 87)  chlorobenzene
      0.957 0.967 0.975 0.936 0.930 0.939 0.931 0.950 0.887 1.032  0.950    3.95
 88)  1,1,1,2-tetrachloroethane
      0.348 0.365 0.383 0.369 0.359 0.371 0.387 0.369 0.342 0.368  0.366    3.79
 89)  ethylbenzene
      1.575 1.622 1.515 1.508 1.520 1.428 1.534 1.606 1.471 1.640  1.542    4.41
 90)  m,p-xylene
      0.600 0.637 0.616 0.602 0.591 0.603 0.608 0.606 0.578 0.643  0.608    3.22
 91)  o-xylene
      0.594 0.660 0.666 0.644 0.636 0.642 0.591 0.668 0.614 0.672  0.639    4.70
 92)  styrene
      0.972 1.043 1.050 1.030 1.029 1.004 0.887 1.043 1.005 1.068  1.013    5.14
 93)  butyl acrylate
      0.685 0.760 0.919 0.861 0.849 0.861 0.673 0.782 0.765        0.795   10.53
 94)  bromoform
      0.269 0.282 0.381 0.346 0.318 0.375       0.293 0.290        0.319   13.56
 95)  isopropylbenzene
      1.684 1.723 1.696 1.683 1.665 1.589 1.583 1.707 1.617 1.604  1.655    3.14
 96)  cis-1,4-dichloro-2-butene
            0.188 0.224 0.209 0.199 0.219       0.194 0.181        0.202    7.88

 97) I   1,4-dichlorobenzene-d ----------------ISTD--------------------
 98)  4-bromofluorobenzene (s)
      0.799 0.805 0.839 0.841 0.819 0.847 0.800 0.796 0.801 0.798  0.814    2.51
 99)  bromobenzene
      0.928 0.897 0.816 0.830 0.837 0.751 0.866 0.886 0.818 0.957  0.859    7.04
100)  1,1,2,2-tetrachloroethane
      1.020 1.068 1.081 1.079 1.090 0.956 0.910 1.064 1.026 0.948  1.024    6.30
101)  trans-1,4-dichloro-2-butene
                0.149 0.144 0.141 0.142       0.120 0.120        0.136    9.35
102)  1,2,3-trichloropropane
      0.292 0.316 0.275 0.274 0.283 0.252       0.286 0.274        0.282    6.57
103)  n-propylbenzene
      3.184 3.448 3.016 3.104 3.153 2.783 3.180 3.292 3.135 3.082  3.138    5.51
104)  2-chlorotoluene
      0.767 0.796 0.742 0.741 0.726 0.706 0.705 0.750 0.695 0.755  0.738    4.23
105)  4-chlorotoluene
      2.017 2.172 1.999 2.003 2.004 1.852 1.949 2.063 1.946 2.180  2.018    4.97
106)  1,3,5-trimethylbenzene
      2.297 2.478 2.267 2.327 2.356 2.082 2.230 2.417 2.316 2.472  2.324    5.11
107)  tert-butylbenzene
      2.028 2.114 2.161 2.176 2.114 1.999 2.024 2.054 2.030 1.836  2.054    4.77
108)  1,2,4-trimethylbenzene
      2.460 2.527 2.345 2.389 2.427 2.148 2.238 2.447 2.412 2.258  2.365    4.96
109)  sec-butylbenzene
      3.028 3.247 3.234 3.268 3.222 2.958 2.863 3.177 3.139 3.036  3.117    4.44
110)  1,3-dichlorobenzene
      1.714 1.763 1.491 1.511 1.558 1.377 1.617 1.694 1.577 1.772  1.607    8.02
111)  p-isopropyltoluene
      2.537 2.706 2.710 2.746 2.728 2.491 2.377 2.709 2.608 2.397  2.601    5.44
112)  1,4-dichlorobenzene
      1.520 1.654 1.506 1.495 1.497 1.414 1.635 1.563 1.438 1.887  1.561    8.80
113)  1,2-dichlorobenzene
```

Initial Calibration Summary

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Sample: V2C7685-ICC7685
Lab FileID: 2C170991.D

```
       1.701 1.778 1.612 1.630 1.676 1.452 1.719 1.732 1.634 1.902  1.684    6.98
114)  n-butylbenzene
       1.177 1.350 1.430 1.427 1.382 1.318 1.191 1.346 1.330 1.202  1.315    7.15
115)  1,2-dibromo-3-chloropropane
             0.240 0.304 0.276 0.271 0.270       0.227 0.237        0.261   10.39
116)  1,3,5-trichlorobenzene
       1.520 1.532 1.535 1.556 1.541 1.349 1.435 1.548 1.514 1.515  1.505    4.25
117)  nitrobenzene
                   0.057 0.046 0.041 0.059       0.028 0.034        0.044   28.12
             ----- Linear regression -----  Coefficient =  0.9935
               Response Ratio = -0.00359 + 0.05800 *A

118)  1,2,4-trichlorobenzene
       1.093 1.214 1.418 1.390 1.355 1.236 1.122 1.235 1.222 1.360  1.264    8.83
119)  2-ethylhexyl acrylate
                   0.900 0.690 0.544 0.899             0.393        0.685   32.40
             ----- Linear regression -----  Coefficient =  0.9942
               Response Ratio = -0.02183 + 0.91459 *A

120)  hexachlorobutadiene
       0.748 0.748 0.715 0.707 0.706 0.648 0.746 0.778 0.712 0.791  0.730    5.65
121)  naphthalene
             2.544 3.633 3.477 3.376 3.177       2.684 2.894        3.112   13.33
122)  1,2,3-trichlorobenzene
       1.055 1.106 1.330 1.293 1.278 1.163 1.040 1.150 1.174 1.309  1.190    8.96
123)  hexachloroethane
             0.396 0.566 0.532 0.471 0.553       0.404 0.429        0.479   15.01
124)  2-methylnaphthalene
                   2.008 1.648 1.332 1.842             0.908        1.548   28.24
             ----- Linear regression -----  Coefficient =  0.9957
               Response Ratio = -0.07488 + 1.91239 *A

125)  Ethylenimine
                                                                    0.000#  -1.00
126)  Bis(chloromethyl)ether
                                                                    0.000#  -1.00
 ------------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M2C7685.M         Thu Oct 31 12:18:22 2019   RPT1
```

Initial Calibration Verification

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Sample: V2C7685-ICV7685
Lab FileID: 2C170996.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\V2C7685\2C170996.D Vial: 17
Acq On : 31 Oct 2019 12:12 am Operator: brittank
Sample : ICV7685-50 Inst : Instrument #1
Misc : MS38525,V2C7685,5,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\M2C7685.M (RTE Integrator)
Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
Last Update : Thu Oct 31 12:16:57 2019
Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	111	-0.02	8.18
2		ethanol		----------NA----------				
3		tertiary butyl alcohol	1.106	1.089	1.5	111	-0.02	8.31
4		1,4-dioxane	0.094	0.092	2.1	107	0.00	12.22
5	I	pentafluorobenzene	1.000	1.000	0.0	102	0.00	10.65
6		chlorodifluoromethane	0.995	0.881	11.5	88	0.01	4.38
7		dichlorodifluoromethane	1.009	0.879	12.9	80	0.00	4.34
8		chloromethane	1.120	0.910	18.8	84	0.00	4.78
9		vinyl chloride	0.995	0.854	14.2	83	0.00	5.06
10		1,3-butadiene	0.703	0.673	4.3	97	0.00	5.10
11		bromomethane	0.668	0.718	-7.5	113	0.01	5.76
12		chloroethane	0.482	0.408	15.4	86	0.00	5.95
13		trichlorofluoromethane	0.994	0.992	0.2	98	0.00	6.49
14		vinyl bromide	0.497	0.512	-3.0	100	0.00	6.35
15		ethyl ether	0.310	0.312	-0.6	101	0.00	6.92
16		2-chloropropane	1.123	1.071	4.6	98	0.00	7.18
17		acrolein	0.153	0.125	18.3	78	0.00	7.18
18		freon 113	0.515	0.483	6.2	97	0.00	7.43
19		1,1-dichloroethene	0.562	0.497	11.6	92	0.00	7.43
20		acetone		----------NA----------				
21		iodomethane	0.861	1.090	-26.6	127	0.00	7.71
22		acetonitrile		----------NA----------				
23		carbon disulfide	1.577	1.782	-13.0	113	0.00	7.88
24		methylene chloride	0.648	0.611	5.7	101	0.00	8.23
25		methyl acetate	0.710	0.695	2.1	97	0.00	7.94
26		methyl tert butyl ether	1.708	1.655	3.1	100	0.00	8.62
27		trans-1,2-dichloroethene	0.542	0.492	9.2	96	0.00	8.65
28		hexane	0.396	0.370	6.6	93	0.00	9.05
29		di-isopropyl ether	1.899	1.779	6.3	96	0.00	9.29
30		1,1-dichloroethane	0.945	0.917	3.0	101	0.00	9.29
31		chloroprene	0.774	0.789	-1.9	100	0.00	9.40
32		acrylonitrile		----------NA----------				
33		vinyl acetate	0.112	0.097	13.4	87	0.00	9.23
34		ethyl tert-butyl ether	1.668	1.763	-5.7	106	0.00	9.80
35		2-butanone	0.099	0.111	-12.1	114	0.00	9.99
36		ethyl acetate	0.131	0.126	3.8	96	0.00	10.02
37		2,2-dichloropropane	0.719	0.656	8.8	96	0.00	10.10
38		cis-1,2-dichloroethene	0.589	0.534	9.3	99	0.00	10.06
39		propionitrile	0.138	0.140	-1.4	108	0.00	10.08
40		bromochloromethane	0.303	0.305	-0.7	103	0.00	10.38
41		tetrahydrofuran	0.112	0.117	-4.5	110	0.00	10.40

Initial Calibration Verification

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Sample: V2C7685-ICV7685
Lab FileID: 2C170996.D

42		chloroform	0.984	0.915	7.0	101	0.00	10.48
43		t-butyl formate	0.428	0.330	22.9	73	0.00	10.52
44	S	dibromofluoromethane (s)	0.457	0.464	-1.5	102	0.00	10.68
45		methacrylonitrile	0.282	0.303	-7.4	104	0.00	10.29
46		1,1,1-trichloroethane	0.832	0.831	0.1	99	0.00	10.75
47		cyclohexane	0.801	0.779	2.7	98	0.00	10.87
48		1,1-dichloropropene	0.668	0.614	8.1	98	0.00	10.93
49		carbon tetrachloride	0.670	0.684	-2.1	101	0.00	10.96
50		isobutyl alcohol		----------NA----------				
51	I	1,4-difluorobenzene	1.000	1.000	0.0	100	0.00	11.59
52	S	1,2-dichloroethane-d4 (s)	0.369	0.356	3.5	101	0.00	11.11
53		n-butyl alcohol	0.022	0.023	-4.5	105	0.00	11.66
54		tert-amyl alcohol	0.031	0.031	0.0	108	0.00	11.07
55		iso-octane	1.126	1.301	-15.5	117	0.00	11.28
56		benzene	1.317	1.237	6.1	97	0.00	11.17
57		tert-amyl methyl ether	0.234	0.227	3.0	100	0.00	11.27
58		heptane	0.241	0.262	-8.7	110	0.00	11.45
59		isopropyl acetate	0.092	0.087	5.4	97	0.00	11.10
60		1,2-dichloroethane	0.495	0.453	8.5	99	0.00	11.21
61		ethyl acrylate	0.562	0.579	-3.0	100	0.00	11.89
62		trichloroethene	0.340	0.327	3.8	100	0.00	11.90
63		2-nitropropane	0.116	0.128	-10.3	110	0.00	12.62
64		2-chloroethyl vinyl ether	0.208	0.230	-10.6	106	0.00	12.66
65		methyl methacrylate	0.107	0.108	-0.9	100	0.00	12.14
66		1,2-dichloropropane	0.349	0.313	10.3	94	0.00	12.18
67		dibromomethane	0.240	0.233	2.9	98	0.00	12.28
68		methylcyclohexane	0.577	0.549	4.9	95	0.00	12.19
69		bromodichloromethane	0.458	0.459	-0.2	97	0.00	12.43
70		epichlorohydrin	0.062	0.068	-9.7	110	0.00	12.74
71		cis-1,3-dichloropropene	0.537	0.546	-1.7	98	0.00	12.87
72		4-methyl-2-pentanone	0.200	0.198	1.0	104	0.00	12.97
73		3-methyl-1-butanol	0.036	0.036	0.0	105	0.00	12.97
74	I	chlorobenzene-d5	1.000	1.000	0.0	100	0.00	14.58
75	S	toluene-d8 (s)	1.185	1.198	-1.1	100	0.00	13.16
76		toluene	0.866	0.848	2.1	97	0.00	13.23
77		ethyl methacrylate	0.490	0.535	-9.2	103	0.00	13.40
78		trans-1,3-dichloropropene	0.534	0.572	-7.1	100	0.00	13.41
79		1,1,2-trichloroethane	0.316	0.314	0.6	99	0.00	13.61
80		2-hexanone	0.217	0.221	-1.8	104	0.00	13.76
81		tetrachloroethene		----------NA----------				
82		1,3-dichloropropane	0.567	0.521	8.1	98	0.00	13.79
83		butyl acetate	0.316	0.309	2.2	100	0.00	13.84
84		dibromochloromethane	0.408	0.451	-10.5	103	0.00	14.02
85		1,2-dibromoethane	0.467	0.483	-3.4	100	0.00	14.16
86		n-butyl ether	1.385	1.455	-5.1	99	0.00	14.57
87		chlorobenzene	0.950	0.941	0.9	101	0.00	14.61
88		1,1,1,2-tetrachloroethane	0.366	0.370	-1.1	100	0.00	14.67
89		ethylbenzene	1.542	1.472	4.5	98	0.00	14.67
90		m,p-xylene	0.608	0.588	3.3	98	0.00	14.78
91		o-xylene	0.639	0.637	0.3	99	0.00	15.15
92		styrene	1.013	1.016	-0.3	99	0.00	15.16
93		butyl acrylate	0.795	0.859	-8.1	100	0.00	14.99
94		bromoform	0.319	0.374	-17.2	108	0.00	15.38
95		isopropylbenzene	1.655	1.671	-1.0	99	0.00	15.48
96		cis-1,4-dichloro-2-butene	0.202	0.208	-3.0	99	0.00	15.51
97	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	100	0.00	16.76
98	S	4-bromofluorobenzene (s)	0.814	0.845	-3.8	101	0.00	15.67

Initial Calibration Verification

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Sample: V2C7685-ICV7685
Lab FileID: 2C170996.D

99	bromobenzene	0.859	0.821	4.4	99	0.00	15.84
100	1,1,2,2-tetrachloroethane	1.024	1.078	-5.3	100	0.00	15.74
101	trans-1,4-dichloro-2-bute	0.136	0.147	-8.1	103	0.00	15.77
102	1,2,3-trichloropropane	0.282	0.274	2.8	100	0.00	15.82
103	n-propylbenzene	3.138	3.062	2.4	99	0.00	15.87
104	2-chlorotoluene	0.738	0.726	1.6	98	0.00	15.99
105	4-chlorotoluene	2.018	2.020	-0.1	101	0.00	16.10
106	1,3,5-trimethylbenzene	2.324	2.285	1.7	99	0.00	16.01
107	tert-butylbenzene	2.054	2.146	-4.5	99	0.00	16.33
108	1,2,4-trimethylbenzene	2.365	2.388	-1.0	100	0.00	16.38
109	sec-butylbenzene	3.117	3.239	-3.9	100	0.00	16.53
110	1,3-dichlorobenzene	1.607	1.528	4.9	102	0.00	16.70
111	p-isopropyltoluene	2.601	2.743	-5.5	100	0.00	16.65
112	1,4-dichlorobenzene	1.561	1.507	3.5	101	0.00	16.78
113	1,2-dichlorobenzene	1.684	1.644	2.4	101	0.00	17.14
114	n-butylbenzene	1.315	1.405	-6.8	99	0.00	17.05
115	1,2-dibromo-3-chloropropa	0.261	0.282	-8.0	102	0.00	17.89
116	1,3,5-trichlorobenzene	1.505	1.570	-4.3	101	0.00	18.09
		True	Calc.	% Drift			
117	nitrobenzene	50.000	45.082	9.8	106	0.00	18.09
		AvgRF	CCRF	% Dev			
118	1,2,4-trichlorobenzene	1.264	1.405	-11.2	102	0.00	18.74
		True	Calc.	% Drift			
119	2-ethylhexyl acrylate	10.000	9.927	0.7	116	0.00	18.75
		AvgRF	CCRF	% Dev			
120	hexachlorobutadiene	0.730	0.683	6.4	97	0.00	18.86
121	naphthalene	3.112	3.614	-16.1	104	0.00	19.03
122	1,2,3-trichlorobenzene	1.190	1.311	-10.2	102	0.00	19.26
123	hexachloroethane	0.479	0.538	-12.3	101	0.00	17.43
		True	Calc.	% Drift			
124	2-methylnaphthalene	25.000	26.680	-6.7	115	0.00	20.19
		AvgRF	CCRF	% Dev			
125	Ethylenimine		----------NA----------				
126	Bis(chloromethyl)ether		----------NA----------				

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2C170991.D M2C7685.M Thu Oct 31 12:18:11 2019 RPT1

Initial Calibration Verification

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Sample: V2C7685-ICV7685
Lab FileID: 2C170997.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\V2C7685\2C170997.D Vial: 18
Acq On : 31 Oct 2019 12:40 am Operator: brittank
Sample : ICV7685-50 Inst : Instrument #1
Misc : MS38525,V2C7685,5,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\M2C7685.M (RTE Integrator)
Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
Last Update : Thu Oct 31 12:09:52 2019
Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	114	0.00	8.19
2		ethanol		----------NA----------				
3		tertiary butyl alcohol		----------NA----------				
4		1,4-dioxane		----------NA----------				
5	I	pentafluorobenzene	1.000	1.000	0.0	107	0.00	10.65
6		chlorodifluoromethane		----------NA----------				
7		dichlorodifluoromethane		----------NA----------				
8		chloromethane		----------NA----------				
9		vinyl chloride		----------NA----------				
10		1,3-butadiene		----------NA----------				
11		bromomethane		----------NA----------				
12		chloroethane		----------NA----------				
13		trichlorofluoromethane		----------NA----------				
14		vinyl bromide		----------NA----------				
15		ethyl ether		----------NA----------				
16		2-chloropropane		----------NA----------				
17		acrolein		----------NA----------				
18		freon 113		----------NA----------				
19		1,1-dichloroethene		----------NA----------				
20		acetone	0.081	0.083	-2.5	107	0.02	7.43
21		iodomethane		----------NA----------				
22		acetonitrile		----------NA----------				
23		carbon disulfide		----------NA----------				
24		methylene chloride		----------NA----------				
25		methyl acetate		----------NA----------				
26		methyl tert butyl ether		----------NA----------				
27		trans-1,2-dichloroethene		----------NA----------				
28		hexane		----------NA----------				
29		di-isopropyl ether		----------NA----------				
30		1,1-dichloroethane		----------NA----------				
31		chloroprene		----------NA----------				
32		acrylonitrile	0.330	0.339	-2.7	109	0.00	8.53
33		vinyl acetate		----------NA----------				
34		ethyl tert-butyl ether		----------NA----------				
35		2-butanone		----------NA----------				
36		ethyl acetate		----------NA----------				
37		2,2-dichloropropane		----------NA----------				
38		cis-1,2-dichloroethene		----------NA----------				
39		propionitrile		----------NA----------				
40		bromochloromethane		----------NA----------				
41		tetrahydrofuran		----------NA----------				

Initial Calibration Verification

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Sample: V2C7685-ICV7685
Lab FileID: 2C170997.D

42		chloroform		----------NA----------				
43		t-butyl formate		----------NA----------				
44	S	dibromofluoromethane (s)	0.457	0.453	0.9	105	0.00	10.68
45		methacrylonitrile		----------NA----------				
46		1,1,1-trichloroethane		----------NA----------				
47		cyclohexane		----------NA----------				
48		1,1-dichloropropene		----------NA----------				
49		carbon tetrachloride		----------NA----------				
50		isobutyl alcohol		----------NA----------				
51	I	1,4-difluorobenzene	1.000	1.000	0.0	105	0.00	11.59
52	S	1,2-dichloroethane-d4 (s)	0.369	0.386	-4.6	115	0.00	11.11
53		n-butyl alcohol		----------NA----------				
54		tert-amyl alcohol		----------NA----------				
55		iso-octane		----------NA----------				
56		benzene		----------NA----------				
57		tert-amyl methyl ether		----------NA----------				
58		heptane		----------NA----------				
59		isopropyl acetate		----------NA----------				
60		1,2-dichloroethane		----------NA----------				
61		ethyl acrylate		----------NA----------				
62		trichloroethene		----------NA----------				
63		2-nitropropane		----------NA----------				
64		2-chloroethyl vinyl ether		----------NA----------				
65		methyl methacrylate		----------NA----------				
66		1,2-dichloropropane		----------NA----------				
67		dibromomethane		----------NA----------				
68		methylcyclohexane		----------NA----------				
69		bromodichloromethane		----------NA----------				
70		epichlorohydrin		----------NA----------				
71		cis-1,3-dichloropropene		----------NA----------				
72		4-methyl-2-pentanone		----------NA----------				
73		3-methyl-1-butanol		----------NA----------				
74	I	chlorobenzene-d5	1.000	1.000	0.0	108	0.00	14.58
75	S	toluene-d8 (s)	1.185	1.158	2.3	105	0.00	13.16
76		toluene		----------NA----------				
77		ethyl methacrylate		----------NA----------				
78		trans-1,3-dichloropropene		----------NA----------				
79		1,1,2-trichloroethane		----------NA----------				
80		2-hexanone		----------NA----------				
81		tetrachloroethene	0.345	0.320	7.2	106	0.00	13.76
82		1,3-dichloropropane		----------NA----------				
83		butyl acetate		----------NA----------				
84		dibromochloromethane		----------NA----------				
85		1,2-dibromoethane		----------NA----------				
86		n-butyl ether		----------NA----------				
87		chlorobenzene		----------NA----------				
88		1,1,1,2-tetrachloroethane		----------NA----------				
89		ethylbenzene		----------NA----------				
90		m,p-xylene		----------NA----------				
91		o-xylene		----------NA----------				
92		styrene		----------NA----------				
93		butyl acrylate		----------NA----------				
94		bromoform		----------NA----------				
95		isopropylbenzene		----------NA----------				
96		cis-1,4-dichloro-2-butene		----------NA----------				
97	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	113	0.00	16.76
98	S	4-bromofluorobenzene (s)	0.814	0.791	2.8	106	0.00	15.67

Initial Calibration Verification

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Sample: V2C7685-ICV7685
Lab FileID: 2C170997.D

99	bromobenzene		----------NA----------	
100	1,1,2,2-tetrachloroethane		----------NA----------	
101	trans-1,4-dichloro-2-bute		----------NA----------	
102	1,2,3-trichloropropane		----------NA----------	
103	n-propylbenzene		----------NA----------	
104	2-chlorotoluene		----------NA----------	
105	4-chlorotoluene		----------NA----------	
106	1,3,5-trimethylbenzene		----------NA----------	
107	tert-butylbenzene		----------NA----------	
108	1,2,4-trimethylbenzene		----------NA----------	
109	sec-butylbenzene		----------NA----------	
110	1,3-dichlorobenzene		----------NA----------	
111	p-isopropyltoluene		----------NA----------	
112	1,4-dichlorobenzene		----------NA----------	
113	1,2-dichlorobenzene		----------NA----------	
114	n-butylbenzene		----------NA----------	
115	1,2-dibromo-3-chloropropa		----------NA----------	
116	1,3,5-trichlorobenzene		----------NA----------	
	----------	True	Calc.	% Drift ----------
117	nitrobenzene		----------NA----------	
	----------	AvgRF	CCRF	% Dev ----------
118	1,2,4-trichlorobenzene		----------NA----------	
	----------	True	Calc.	% Drift ----------
119	2-ethylhexyl acrylate		----------NA----------	
	----------	AvgRF	CCRF	% Dev ----------
120	hexachlorobutadiene		----------NA----------	
121	naphthalene		----------NA----------	
122	1,2,3-trichlorobenzene		----------NA----------	
123	hexachloroethane		----------NA----------	
	----------	True	Calc.	% Drift ----------
124	2-methylnaphthalene		----------NA----------	
	----------	AvgRF	CCRF	% Dev ----------
125	Ethylenimine		----------NA----------	
126	Bis(chloromethyl)ether		----------NA----------	

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2C170991.D M2C7685.M Thu Oct 31 12:11:45 2019 RPT1

Continuing Calibration Summary

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Sample: V2C7731-CC7685
Lab FileID: 2C172051.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\data\kr...19\v2c7731\2c172051.d Vial: 24
Acq On : 27 Nov 2019 9:20 pm Operator: EddieH
Sample : cc7685-50 Inst : Instrument #1
Misc : MS39367,V2C7731,5,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\M2C7685.M (RTE Integrator)
Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
Last Update : Thu Oct 31 12:16:57 2019
Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	103	-0.01	8.19
2		ethanol		----------NA----------				
3		tertiary butyl alcohol	1.106	1.217	-10.0	116	-0.01	8.32
4		1,4-dioxane	0.094	0.096	-2.1	104	0.00	12.23
5	I	pentafluorobenzene	1.000	1.000	0.0	111	0.00	10.65
6		chlorodifluoromethane	0.995	0.873	12.3	95	0.00	4.37
7		dichlorodifluoromethane	1.009	0.842	16.6	84	0.00	4.33
8		chloromethane	1.120	0.976	12.9	99	0.00	4.78
9		vinyl chloride	0.995	0.969	2.6	103	0.00	5.05
10		1,3-butadiene	0.703	0.732	-4.1	116	0.00	5.10
11		bromomethane	0.668	0.645	3.4	111	0.00	5.76
12		chloroethane	0.482	0.469	2.7	108	0.00	5.95
13		trichlorofluoromethane	0.994	0.948	4.6	102	0.00	6.49
14		vinyl bromide	0.497	0.563	-13.3	120	0.00	6.35
15		ethyl ether	0.310	0.305	1.6	108	0.00	6.92
16		2-chloropropane	1.123	0.947	15.7	95	-0.01	7.17
17		acrolein	0.153	0.153	0.0	104	0.00	7.17
18		freon 113	0.515	0.498	3.3	110	0.00	7.42
19		1,1-dichloroethene	0.562	0.562	0.0	114	0.00	7.43
20		acetone	0.081	0.075	7.4	101	0.00	7.40
21		iodomethane	0.861	0.915	-6.3	116	0.00	7.70
22		acetonitrile		----------NA----------				
23		carbon disulfide	1.577	1.615	-2.4	112	0.00	7.87
24		methylene chloride	0.648	0.620	4.3	112	0.00	8.23
25		methyl acetate	0.710	0.582	18.0	89	0.00	7.93
26		methyl tert butyl ether	1.708	1.611	5.7	107	0.00	8.62
27		trans-1,2-dichloroethene	0.542	0.530	2.2	113	0.00	8.65
28		hexane	0.396	0.367	7.3	101	0.00	9.05
29		di-isopropyl ether	1.899	1.681	11.5	99	0.00	9.29
30		1,1-dichloroethane	0.945	0.873	7.6	105	0.00	9.28
31		chloroprene	0.774	0.711	8.1	98	0.00	9.40
32		acrylonitrile	0.330	0.308	6.7	103	0.00	8.53
33		vinyl acetate	0.112	0.112	0.0	110	0.00	9.22
34		ethyl tert-butyl ether	1.668	1.646	1.3	108	0.00	9.79
35		2-butanone	0.099	0.096	3.0	107	0.00	9.99
36		ethyl acetate	0.131	0.113	13.7	93	0.00	10.02
37		2,2-dichloropropane	0.719	0.683	5.0	110	0.00	10.10
38		cis-1,2-dichloroethene	0.589	0.557	5.4	113	0.00	10.06
39		propionitrile	0.138	0.123	10.9	103	-0.01	10.07
40		bromochloromethane	0.303	0.304	-0.3	112	0.00	10.38
41		tetrahydrofuran	0.112	0.102	8.9	105	0.00	10.40

Continuing Calibration Summary

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Sample: V2C7731-CC7685
Lab FileID: 2C172051.D

42		chloroform	0.984	0.875	11.1	106	0.00	10.48
43		t-butyl formate	0.428	0.451	-5.4	108	0.00	10.52
44	S	dibromofluoromethane (s)	0.457	0.448	2.0	108	0.00	10.68
45		methacrylonitrile	0.282	0.282	0.0	106	0.00	10.28
46		1,1,1-trichloroethane	0.832	0.807	3.0	106	0.00	10.75
47		cyclohexane	0.801	0.759	5.2	105	0.00	10.87
48		1,1-dichloropropene	0.668	0.616	7.8	108	0.00	10.92
49		carbon tetrachloride	0.670	0.677	-1.0	110	0.00	10.95
50		isobutyl alcohol		----------NA----------				
51	I	1,4-difluorobenzene	1.000	1.000	0.0	107	0.00	11.59
52	S	1,2-dichloroethane-d4 (s)	0.369	0.318	13.8	97	0.00	11.11
53		n-butyl alcohol	0.022	0.021	4.5	100	0.00	11.66
54		tert-amyl alcohol	0.031	0.031	0.0	113	0.00	11.07
55		iso-octane	1.126	1.189	-5.6	114	0.00	11.29
56		benzene	1.317	1.298	1.4	110	0.00	11.17
57		tert-amyl methyl ether	0.234	0.246	-5.1	117	0.00	11.27
58		heptane	0.241	0.238	1.2	107	0.00	11.44
59		isopropyl acetate	0.092	0.092	0.0	110	0.00	11.10
60		1,2-dichloroethane	0.495	0.423	14.5	99	0.00	11.20
61		ethyl acrylate	0.562	0.538	4.3	100	0.00	11.89
62		trichloroethene	0.340	0.336	1.2	109	0.00	11.90
63		2-nitropropane	0.116	0.096	17.2	88	0.00	12.62
64		2-chloroethyl vinyl ether	0.208	0.222	-6.7	109	0.00	12.66
65		methyl methacrylate	0.107	0.112	-4.7	110	0.00	12.14
66		1,2-dichloropropane	0.349	0.323	7.4	104	0.00	12.18
67		dibromomethane	0.240	0.231	3.7	104	0.00	12.28
68		methylcyclohexane	0.577	0.602	-4.3	112	0.00	12.19
69		bromodichloromethane	0.458	0.456	0.4	103	0.00	12.43
70		epichlorohydrin	0.062	0.057	8.1	100	0.00	12.74
71		cis-1,3-dichloropropene	0.537	0.541	-0.7	104	0.00	12.87
72		4-methyl-2-pentanone	0.200	0.185	7.5	103	0.00	12.96
73		3-methyl-1-butanol	0.036	0.031	13.9	95	0.00	12.97
74	I	chlorobenzene-d5	1.000	1.000	0.0	106	0.00	14.58
75	S	toluene-d8 (s)	1.185	1.230	-3.8	109	0.00	13.16
76		toluene	0.866	0.898	-3.7	109	0.00	13.23
77		ethyl methacrylate	0.490	0.503	-2.7	103	0.00	13.40
78		trans-1,3-dichloropropene	0.534	0.547	-2.4	101	0.00	13.40
79		1,1,2-trichloroethane	0.316	0.313	0.9	105	0.00	13.61
80		2-hexanone	0.217	0.201	7.4	100	0.00	13.77
81		tetrachloroethene	0.345	0.361	-4.6	116	0.00	13.76
82		1,3-dichloropropane	0.567	0.528	6.9	105	0.00	13.79
83		butyl acetate	0.316	0.294	7.0	100	0.00	13.84
84		dibromochloromethane	0.408	0.442	-8.3	107	0.00	14.02
85		1,2-dibromoethane	0.467	0.479	-2.6	105	0.00	14.16
86		n-butyl ether	1.385	1.373	0.9	99	0.00	14.57
87		chlorobenzene	0.950	0.995	-4.7	113	0.00	14.61
88		1,1,1,2-tetrachloroethane	0.366	0.394	-7.7	113	0.00	14.67
89		ethylbenzene	1.542	1.549	-0.5	109	0.00	14.67
90		m,p-xylene	0.608	0.625	-2.8	110	0.00	14.78
91		o-xylene	0.639	0.666	-4.2	109	0.00	15.16
92		styrene	1.013	1.056	-4.2	108	0.00	15.16
93		butyl acrylate	0.795	0.803	-1.0	99	0.00	14.99
94		bromoform	0.319	0.361	-13.2	111	0.00	15.38
95		isopropylbenzene	1.655	1.735	-4.8	109	0.00	15.48
96		cis-1,4-dichloro-2-butene	0.202	0.183	9.4	92	0.00	15.51
97	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	105	0.00	16.76
98	S	4-bromofluorobenzene (s)	0.814	0.804	1.2	101	0.00	15.67

Continuing Calibration Summary

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Sample: V2C7731-CC7685
Lab FileID: 2C172051.D

99	bromobenzene	0.859	0.889	-3.5	113	0.00	15.84
100	1,1,2,2-tetrachloroethane	1.024	1.069	-4.4	105	0.00	15.74
101	trans-1,4-dichloro-2-bute	0.136	0.122	10.3	90	0.00	15.77
102	1,2,3-trichloropropane	0.282	0.268	5.0	103	0.00	15.82
103	n-propylbenzene	3.138	3.197	-1.9	109	0.00	15.87
104	2-chlorotoluene	0.738	0.783	-6.1	112	0.00	15.99
105	4-chlorotoluene	2.018	2.010	0.4	106	0.00	16.10
106	1,3,5-trimethylbenzene	2.324	2.429	-4.5	110	0.00	16.01
107	tert-butylbenzene	2.054	2.286	-11.3	111	0.00	16.33
108	1,2,4-trimethylbenzene	2.365	2.480	-4.9	110	0.00	16.38
109	sec-butylbenzene	3.117	3.368	-8.1	109	0.00	16.53
110	1,3-dichlorobenzene	1.607	1.627	-1.2	114	0.00	16.70
111	p-isopropyltoluene	2.601	2.859	-9.9	110	0.00	16.65
112	1,4-dichlorobenzene	1.561	1.642	-5.2	116	0.00	16.79
113	1,2-dichlorobenzene	1.684	1.745	-3.6	113	0.00	17.14
114	n-butylbenzene	1.315	1.447	-10.0	107	0.00	17.05
115	1,2-dibromo-3-chloropropa	0.261	0.254	2.7	97	0.00	17.89
116	1,3,5-trichlorobenzene	1.505	1.682	-11.8	114	0.00	18.09
		True	Calc.	% Drift			
117	nitrobenzene	50.000	53.063	-6.1	132	0.00	18.09
		AvgRF	CCRF	% Dev			
118	1,2,4-trichlorobenzene	1.264	1.525	-20.6#	116	0.00	18.74
		True	Calc.	% Drift			
119	2-ethylhexyl acrylate	10.000	8.745	12.6	106	0.00	18.75
		AvgRF	CCRF	% Dev			
120	hexachlorobutadiene	0.730	0.747	-2.3	112	0.00	18.86
121	naphthalene	3.112	3.646	-17.2	111	0.00	19.03
122	1,2,3-trichlorobenzene	1.190	1.383	-16.2	113	0.00	19.26
123	hexachloroethane	0.479	0.600	-25.3#	119	0.00	17.44
		True	Calc.	% Drift			
124	2-methylnaphthalene	25.000	22.434	10.3	100	0.00	20.20
		AvgRF	CCRF	% Dev			
125	Ethylenimine		----------NA----------				
126	Bis(chloromethyl)ether		----------NA----------				

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2C170991.D M2C7685.M Mon Dec 02 13:24:02 2019

Run Sequence Report

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Run ID: V2C7685	**Method:** SW846 8260C	**Instrument ID:** GCMS2C

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
V2C7685-BFB	2C170983.D	10/30/19 18:00	n/a	BFB Tune
V2C7685-IC7685	2C170984.D	10/30/19 18:29	n/a	Initial cal 0.2
V2C7685-IC7685	2C170985.D	10/30/19 18:57	n/a	Initial cal 0.5
V2C7685-IC7685	2C170986.D	10/30/19 19:26	n/a	Initial cal 1
V2C7685-IC7685	2C170987.D	10/30/19 19:54	n/a	Initial cal 2
V2C7685-IC7685	2C170988.D	10/30/19 20:23	n/a	Initial cal 4
V2C7685-IC7685	2C170989.D	10/30/19 20:52	n/a	Initial cal 8
V2C7685-IC7685	2C170990.D	10/30/19 21:20	n/a	Initial cal 20
V2C7685-ICC7685	2C170991.D	10/30/19 21:49	n/a	Initial cal 50
V2C7685-IC7685	2C170992.D	10/30/19 22:18	n/a	Initial cal 100
V2C7685-IC7685	2C170993.D	10/30/19 22:46	n/a	Initial cal 200
V2C7685-ICV7685	2C170996.D	10/31/19 00:12	n/a	Initial cal verification 50
V2C7685-ICV7685	2C170997.D	10/31/19 00:40	n/a	Initial cal verification 50

Run Sequence Report

Job Number: JC99215
Account: GEIMAW GEI Consultants, Inc.
Project: Tufts Street, Somerville, MA

Run ID: V2C7731	**Method:** SW846 8260C	**Instrument ID:** GCMS2C

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
V2C7731-BFB	2C172051.D	11/27/19 21:20	n/a	BFB Tune
V2C7731-CC7685	2C172051.D	11/27/19 21:20	n/a	Continuing cal 50
V2C7731-BS	2C172052.D	11/27/19 21:48	n/a	Blank Spike
V2C7731-BSD	2C172053.D	11/27/19 22:17	n/a	Blank Spike Duplicate
V2C7731-MB	2C172055.D	11/27/19 23:14	n/a	Method Blank
JC99215-4	2C172056.D	11/27/19 23:43	n/a	045163-MW122
JC99215-4MS	2C172057.D	11/28/19 00:11	n/a	Matrix Spike
JC99215-4MSD	2C172058.D	11/28/19 00:40	n/a	Matrix Spike Duplicate
ZZZZZZ	2C172060.D	11/28/19 01:37	n/a	(unrelated sample)
ZZZZZZ	2C172061.D	11/28/19 02:06	n/a	(unrelated sample)
JC99215-1	2C172062.D	11/28/19 02:35	n/a	045163-MW112A
JC99215-1	2C172063.D	11/28/19 03:03	n/a	045163-MW112A
JC99215-2	2C172064.D	11/28/19 03:32	n/a	045163-MW118D
JC99215-3	2C172065.D	11/28/19 04:01	n/a	045163-MW121D
ZZZZZZ	2C172066.D	11/28/19 04:29	n/a	(unrelated sample)
ZZZZZZ	2C172067.D	11/28/19 04:58	n/a	(unrelated sample)
ZZZZZZ	2C172068.D	11/28/19 05:27	n/a	(unrelated sample)
ZZZZZZ	2C172069.D	11/28/19 05:55	n/a	(unrelated sample)
ZZZZZZ	2C172070.D	11/28/19 06:24	n/a	(unrelated sample)
ZZZZZZ	2C172071.D	11/28/19 06:53	n/a	(unrelated sample)
ZZZZZZ	2C172072.D	11/28/19 07:21	n/a	(unrelated sample)
ZZZZZZ	2C172073.D	11/28/19 07:50	n/a	(unrelated sample)
ZZZZZZ	2C172074.D	11/28/19 08:19	n/a	(unrelated sample)

MS Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172062.d
Acq On : 28 Nov 2019 2:35 am
Operator : EddieH
Sample : JC99215-1 Inst : Instrument #1
Misc : MS39494,V2C7731,5,,,,1
ALS Vial : 35 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:26:41 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

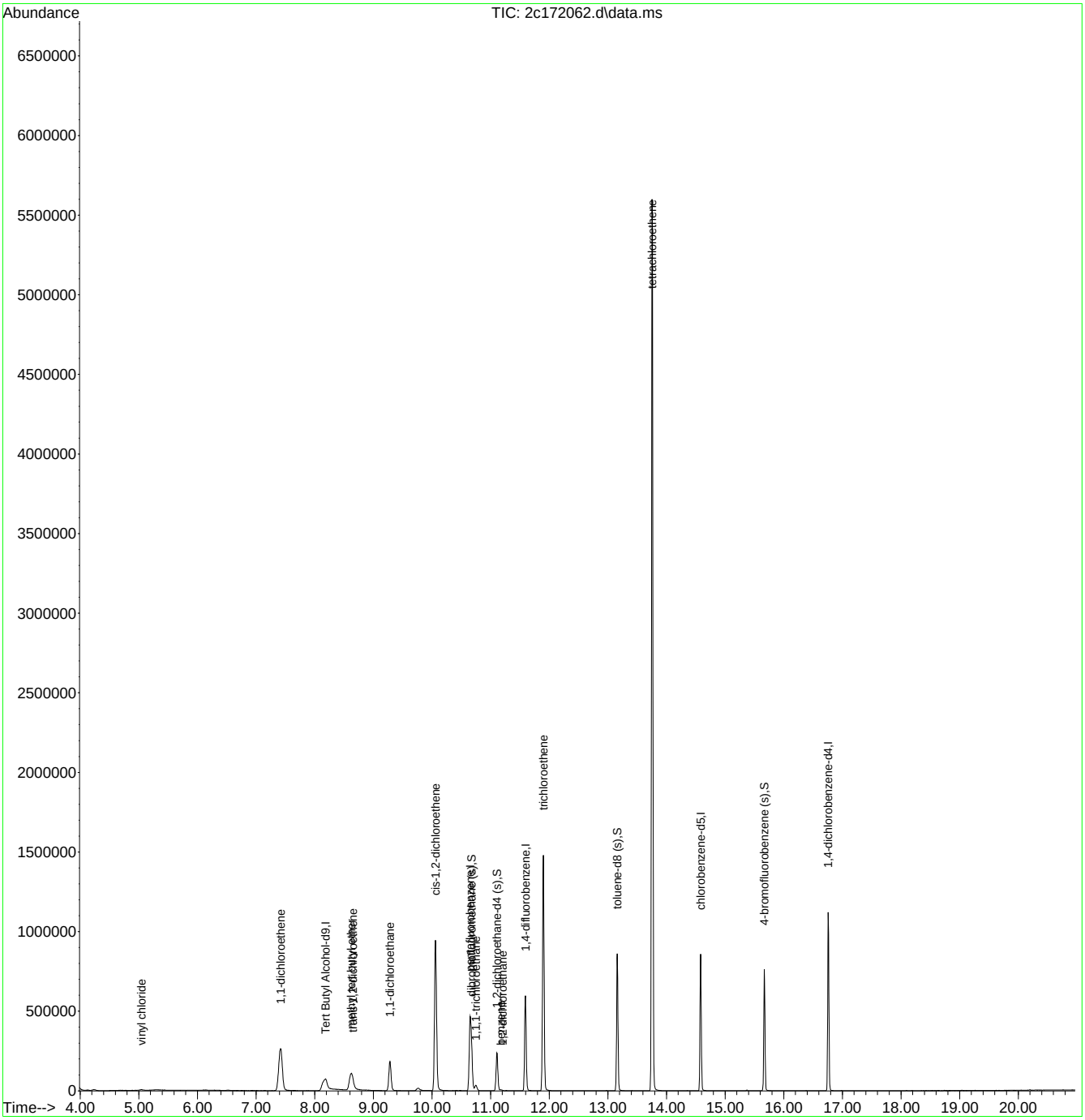
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	8.187	65	331974	500.00	ug/L	-0.01
5) pentafluorobenzene	10.651	168	364345	50.00	ug/L	0.00
51) 1,4-difluorobenzene	11.595	114	538053	50.00	ug/L	0.00
74) chlorobenzene-d5	14.583	117	462808	50.00	ug/L	0.00
97) 1,4-dichlorobenzene-d4	16.759	152	284088	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.677	113	164656	49.44	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 98.88%			
52) 1,2-dichloroethane-d4 (s)	11.107	65	183737	46.30	ug/L	0.00
Spiked Amount 50.000	Range 81 - 124		Recovery = 92.60%			
75) toluene-d8 (s)	13.162	98	560789	51.11	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 102.22%			
98) 4-bromofluorobenzene (s)	15.668	95	212548	45.93	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 91.86%			
Target Compounds						Qvalue
9) vinyl chloride	5.046	62	9892	1.36	ug/L	98
19) 1,1-dichloroethene	7.421	96	258288	63.09	ug/L	90
26) methyl tert butyl ether	8.622	73	270195	21.71	ug/L	97
27) trans-1,2-dichloroethene	8.648	96	1173	0.30	ug/L #	72
30) 1,1-dichloroethane	9.282	63	253916	36.87	ug/L	97
38) cis-1,2-dichloroethene	10.058	96	561518	130.89	ug/L	90
46) 1,1,1-trichloroethane	10.750	97	30163	4.97	ug/L	99
56) benzene	11.175	78	4420	0.31	ug/L	94
60) 1,2-dichloroethane	11.201	62	1659	0.31	ug/L	92
62) trichloroethene	11.899	95	496110	135.69	ug/L	95
81) tetrachloroethene	13.755	164	1382166	432.34	ug/L	99

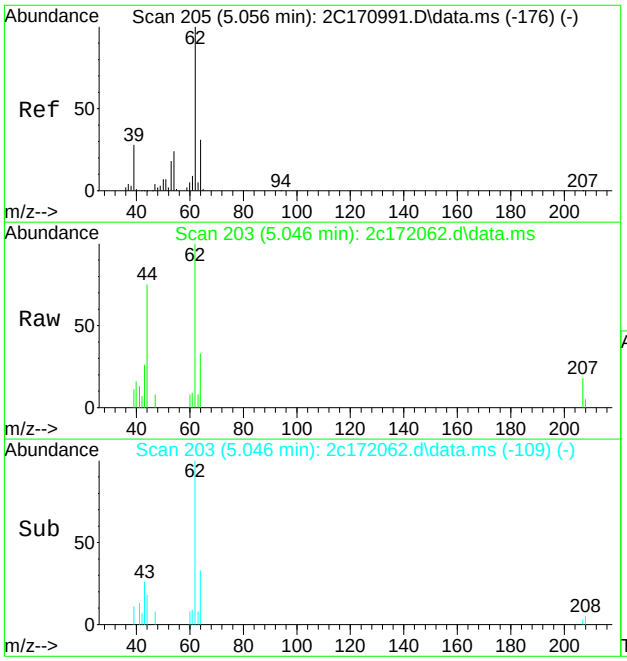
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172062.d
Acq On : 28 Nov 2019 2:35 am
Operator : EddieH
Sample : JC99215-1 Inst : Instrument #1
Misc : MS39494,V2C7731,5,,,,1
ALS Vial : 35 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:26:41 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

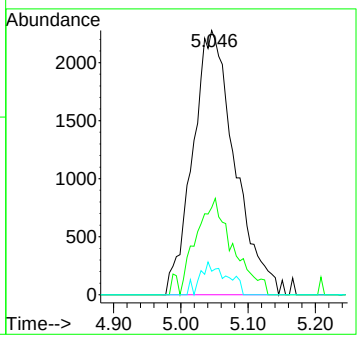


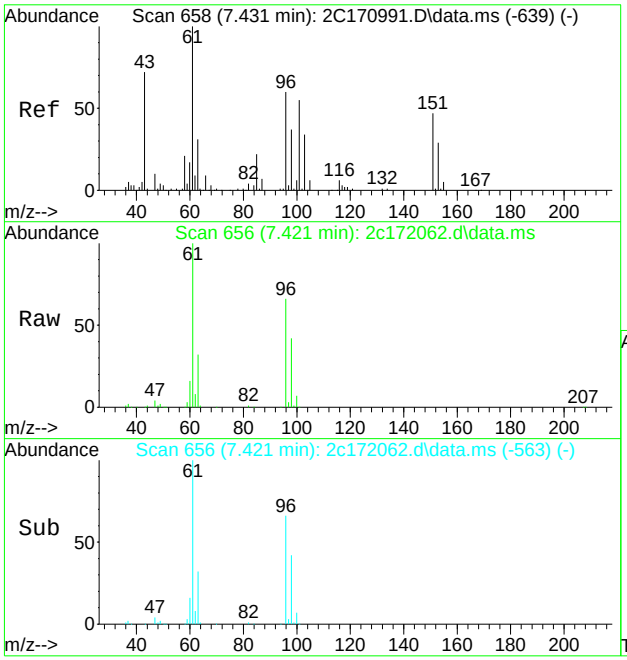


#9
vinyl chloride
Concen: 1.36 ug/L
RT: 5.046 min Scan# 203
Delta R.T. -0.005 min
Lab File: 2c172062.d
Acq: 28 Nov 2019 2:35 am

Tgt Ion: 62 Resp: 9892

Ion	Ratio	Lower	Upper
62	100		
64	33.0	1.3	61.3
61	9.0	0.0	39.0

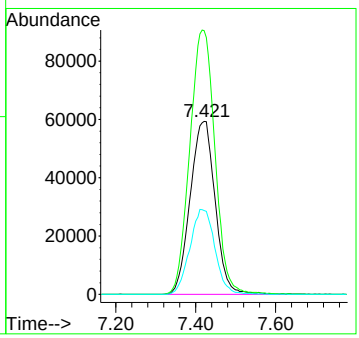


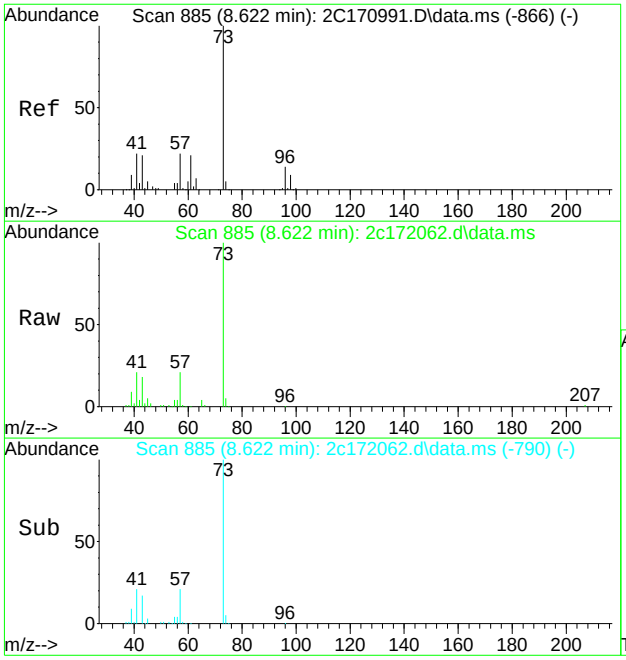


#19
1,1-dichloroethene
Concen: 63.09 ug/L
RT: 7.421 min Scan# 656
Delta R.T. -0.010 min
Lab File: 2c172062.d
Acq: 28 Nov 2019 2:35 am

Tgt Ion: 96 Resp: 258288

Ion	Ratio	Lower	Upper
96	100		
61	152.5	137.4	197.4
63	48.4	22.9	82.9

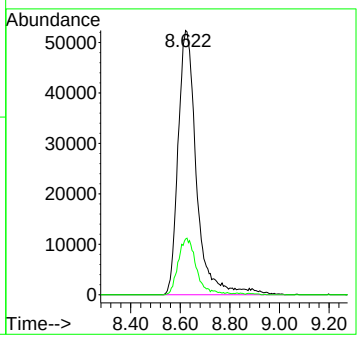


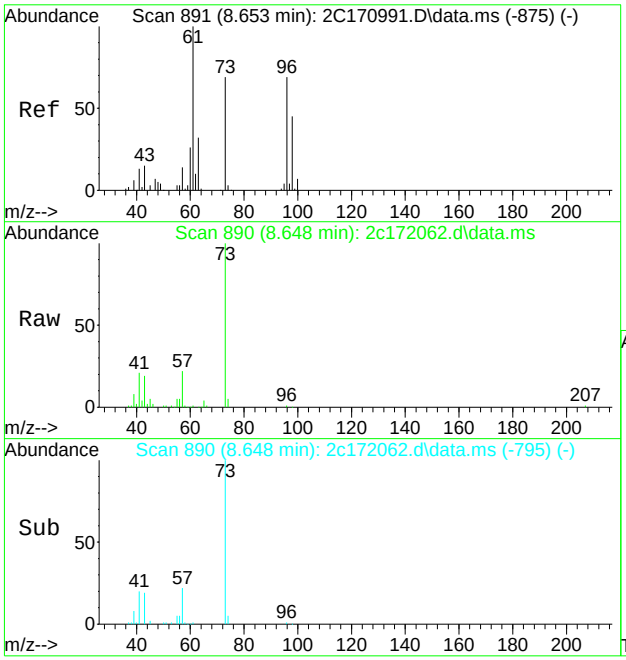


#26
methyl tert butyl ether
Concen: 21.71 ug/L
RT: 8.622 min Scan# 885
Delta R.T. 0.000 min
Lab File: 2c172062.d
Acq: 28 Nov 2019 2:35 am

Tgt Ion: 73 Resp: 270195

Ion	Ratio	Lower	Upper
73	100		
57	21.1	0.0	52.3

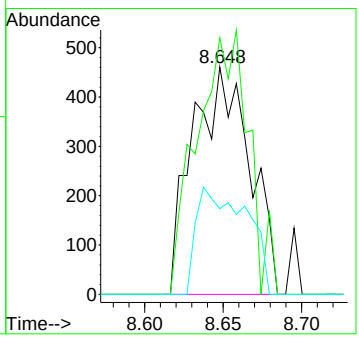


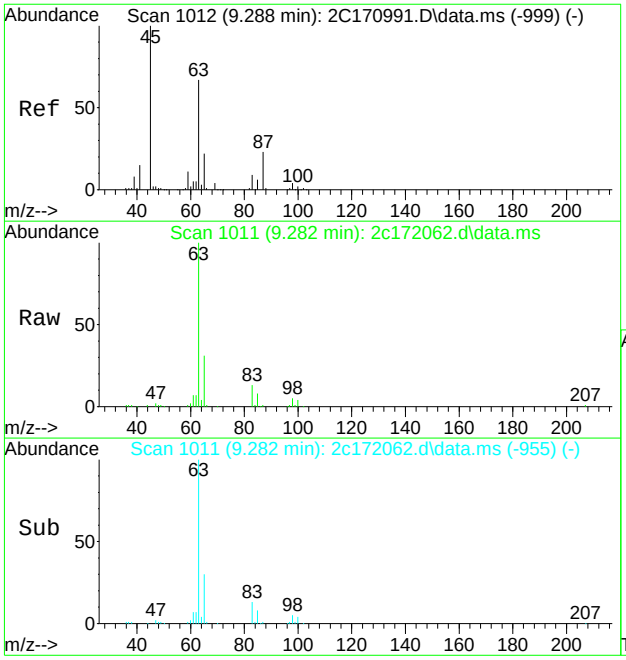


#27
trans-1,2-dichloroethene
Concen: 0.30 ug/L
RT: 8.648 min Scan# 890
Delta R.T. 0.000 min
Lab File: 2c172062.d
Acq: 28 Nov 2019 2:35 am

Tgt Ion: 96 Resp: 1173

Ion	Ratio	Lower	Upper
96	100		
61	112.8	114.5	174.5#
98	37.7	35.3	95.3

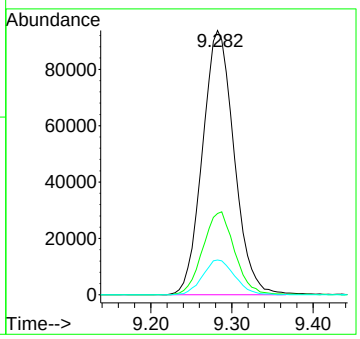


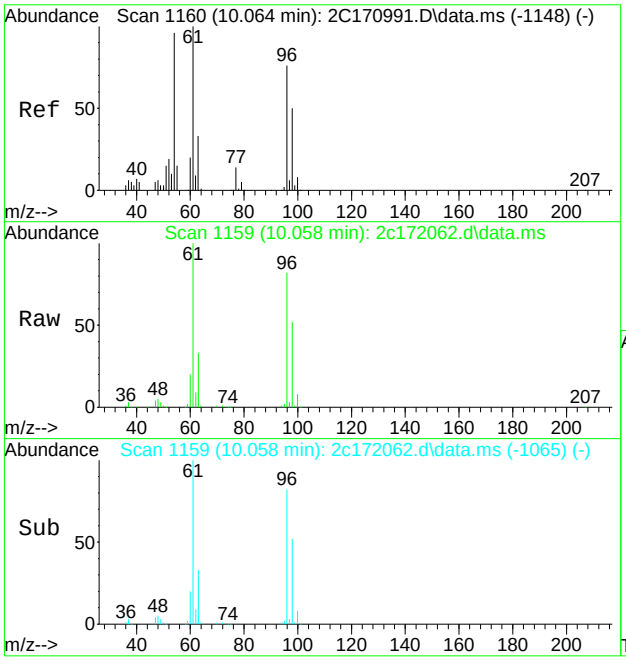


#30
1,1-dichloroethane
Concen: 36.87 ug/L
RT: 9.282 min Scan# 1011
Delta R.T. -0.005 min
Lab File: 2c172062.d
Acq: 28 Nov 2019 2:35 am

Tgt Ion: 63 Resp: 253916

Ion	Ratio	Lower	Upper
63	100		
65	30.8	2.7	62.7
83	13.1	0.0	42.7

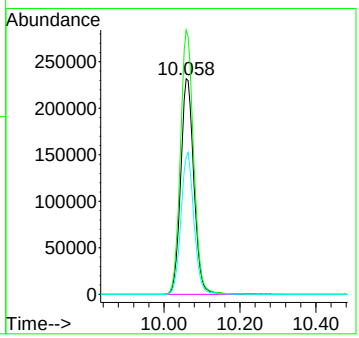


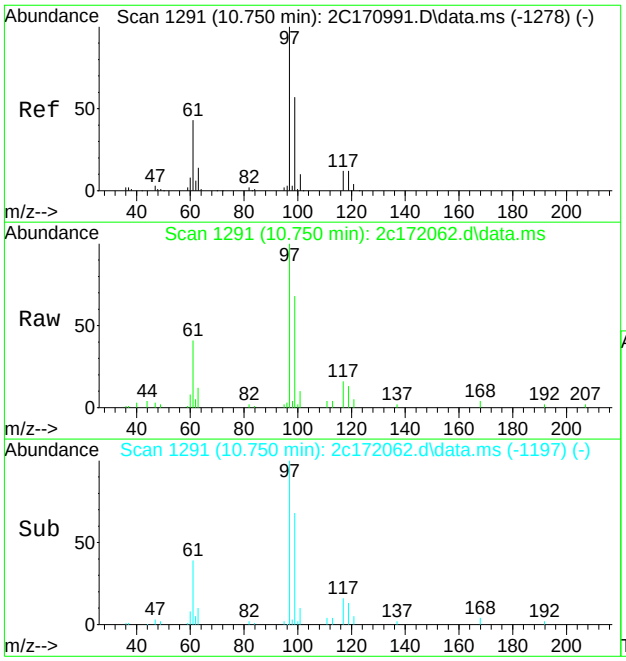


#38
cis-1,2-dichloroethene
Concen: 130.89 ug/L
RT: 10.058 min Scan# 1159
Delta R.T. -0.005 min
Lab File: 2c172062.d
Acq: 28 Nov 2019 2:35 am

Tgt Ion: 96 Resp: 561518

Ion	Ratio	Lower	Upper
96	100		
61	122.6	108.1	168.1
98	63.6	36.0	96.0

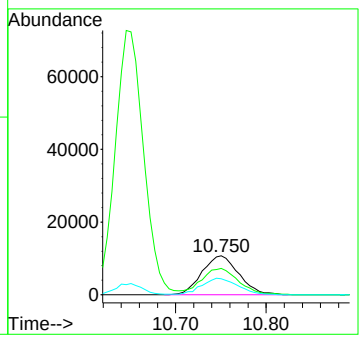


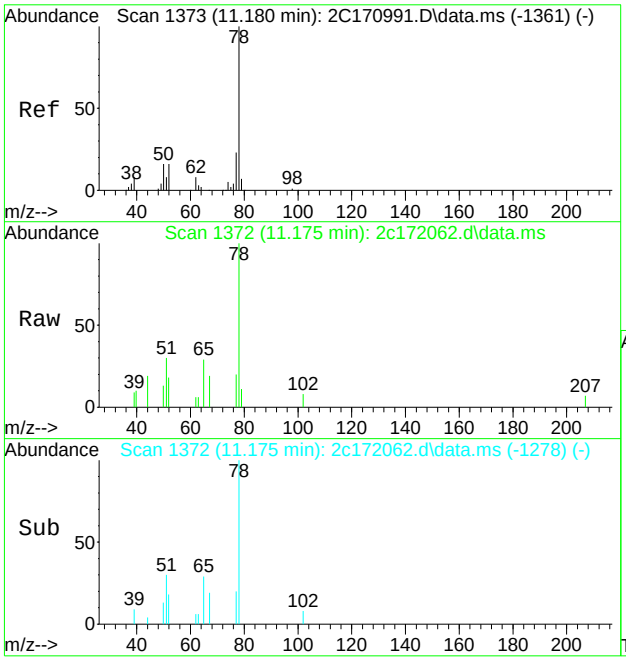


#46
1,1,1-trichloroethane
Concen: 4.97 ug/L
RT: 10.750 min Scan# 1291
Delta R.T. -0.005 min
Lab File: 2c172062.d
Acq: 28 Nov 2019 2:35 am

Tgt Ion: 97 Resp: 30163

Ion	Ratio	Lower	Upper
97	100		
99	66.0	36.0	96.0
61	41.1	12.8	72.8

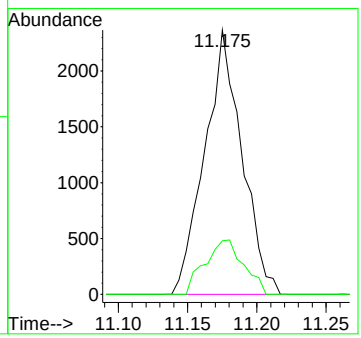


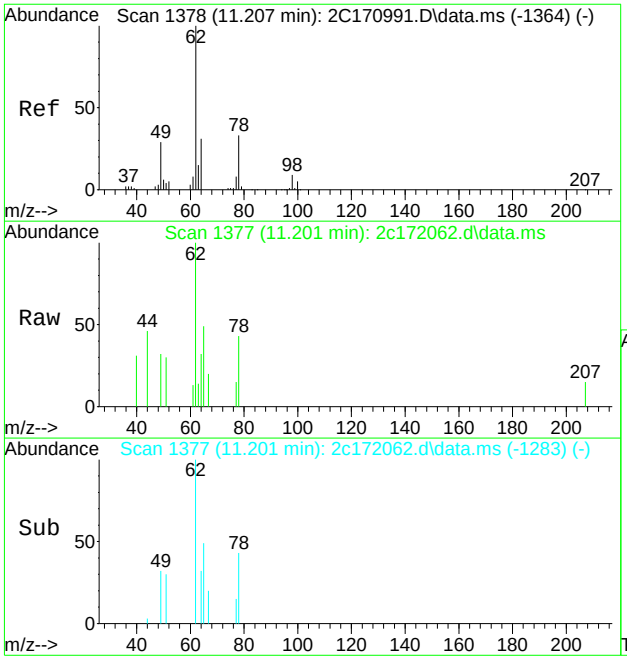


#56
benzene
Concen: 0.31 ug/L
RT: 11.175 min Scan# 1372
Delta R.T. -0.005 min
Lab File: 2c172062.d
Acq: 28 Nov 2019 2:35 am

Tgt Ion: 78 Resp: 4420

Ion	Ratio	Lower	Upper
78	100		
77	20.3	0.0	53.3

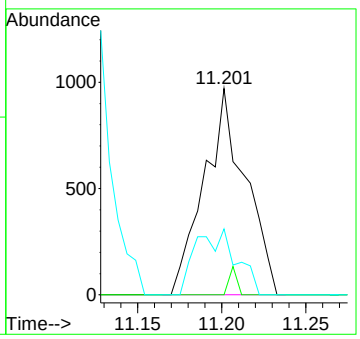


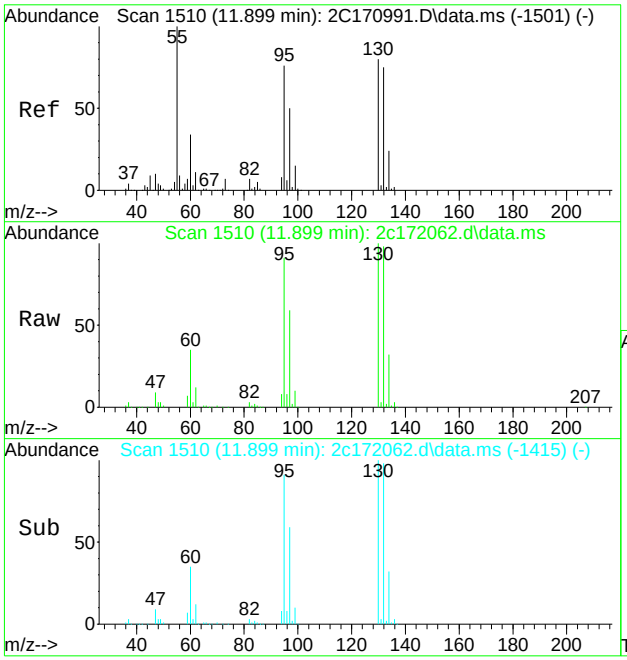


#60
1,2-dichloroethane
Concen: 0.31 ug/L
RT: 11.201 min Scan# 1377
Delta R.T. -0.005 min
Lab File: 2c172062.d
Acq: 28 Nov 2019 2:35 am

Tgt Ion: 62 Resp: 1659

Ion	Ratio	Lower	Upper
62	100		
98	0.0	0.0	38.8
49	32.0	0.2	60.2

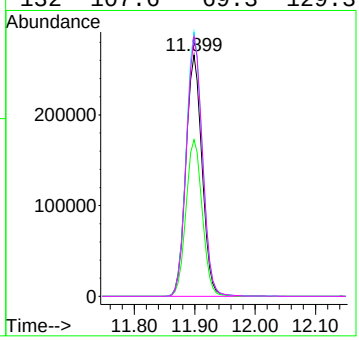


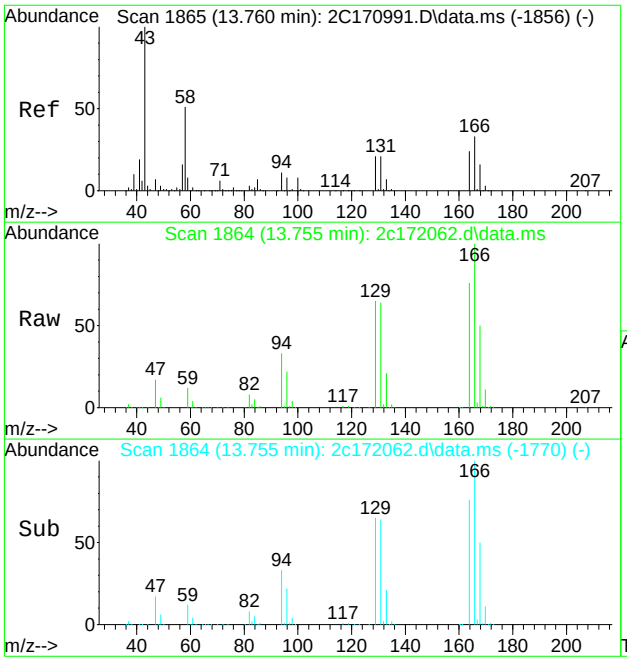


#62
trichloroethene
Concen: 135.69 ug/L
RT: 11.899 min Scan# 1510
Delta R.T. 0.000 min
Lab File: 2c172062.d
Acq: 28 Nov 2019 2:35 am

Tgt Ion: 95 Resp: 496110

Ion	Ratio	Lower	Upper
95	100		
97	65.0	35.3	95.3
130	109.6	74.7	134.7
132	107.6	69.3	129.3

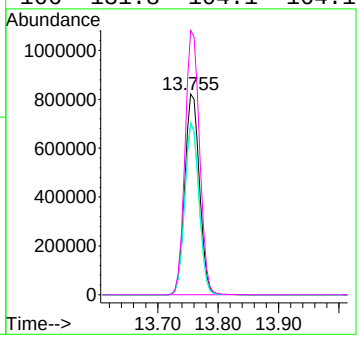




#81
tetrachloroethene
Concen: 432.34 ug/L
RT: 13.755 min Scan# 1864
Delta R.T. -0.005 min
Lab File: 2c172062.d
Acq: 28 Nov 2019 2:35 am

Tgt Ion:164 Resp: 1382166

Ion	Ratio	Lower	Upper
164	100		
129	85.6	57.4	117.4
131	84.9	54.7	114.7
166	131.8	104.1	164.1



7.1.1

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172063.d
Acq On : 28 Nov 2019 3:03 am
Operator : EddieH
Sample : JC99215-1 Inst : Instrument #1
Misc : MS39494,V2C7731,5,,,,10
ALS Vial : 36 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:28:13 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

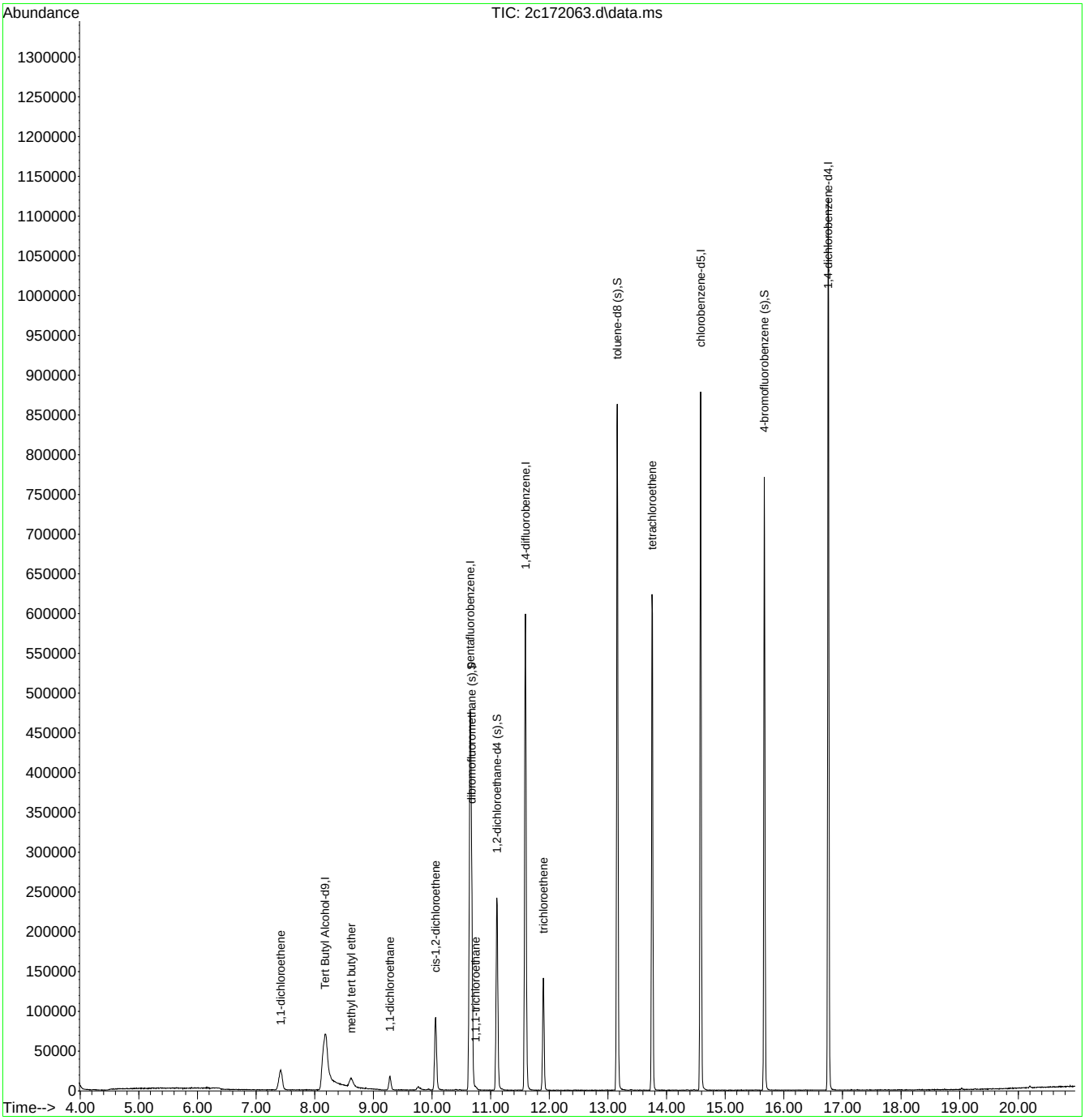
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	8.176	65	344178	500.00	ug/L	-0.02
5) pentafluorobenzene	10.651	168	367428	50.00	ug/L	0.00
51) 1,4-difluorobenzene	11.594	114	540184	50.00	ug/L	0.00
74) chlorobenzene-d5	14.583	117	469080	50.00	ug/L	0.00
97) 1,4-dichlorobenzene-d4	16.759	152	285348	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.677	113	166152	49.47	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 98.94%			
52) 1,2-dichloroethane-d4 (s)	11.107	65	185951	46.67	ug/L	0.00
Spiked Amount 50.000	Range 81 - 124		Recovery = 93.34%			
75) toluene-d8 (s)	13.162	98	565501	50.85	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 101.70%			
98) 4-bromofluorobenzene (s)	15.668	95	213884	46.01	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 92.02%			
Target Compounds						Qvalue
19) 1,1-dichloroethene	7.421	96	23720	5.75	ug/L	85
26) methyl tert butyl ether	8.622	73	24615	1.96	ug/L	88
30) 1,1-dichloroethane	9.282	63	23084	3.32	ug/L	98
38) cis-1,2-dichloroethene	10.063	96	52909	12.23	ug/L	91
46) 1,1,1-trichloroethane	10.745	97	2690	0.44	ug/L	87
62) trichloroethene	11.899	95	47580	12.96	ug/L	93
81) tetrachloroethene	13.755	164	149978	46.29	ug/L	94

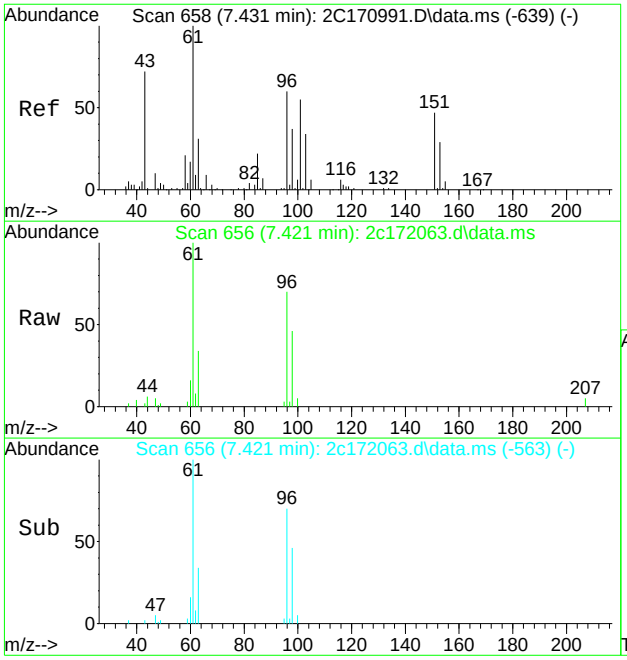
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172063.d
Acq On : 28 Nov 2019 3:03 am
Operator : EddieH
Sample : JC99215-1 Inst : Instrument #1
Misc : MS39494,V2C7731,5,,,,10
ALS Vial : 36 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:28:13 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

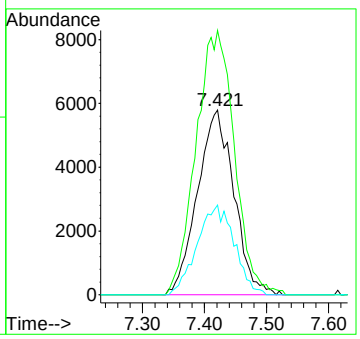


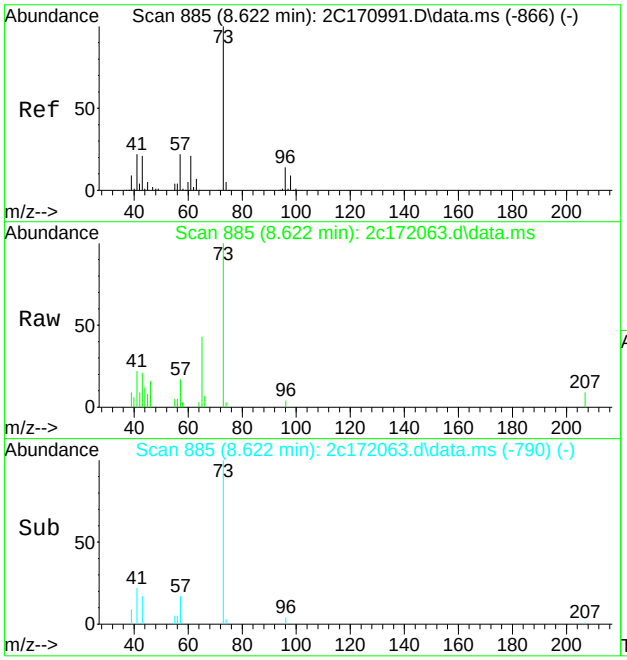


#19
1,1-dichloroethene
Concen: 5.75 ug/L
RT: 7.421 min Scan# 656
Delta R.T. -0.010 min
Lab File: 2c172063.d
Acq: 28 Nov 2019 3:03 am

Tgt Ion: 96 Resp: 23720

Ion	Ratio	Lower	Upper
96	100		
61	143.2	137.4	197.4
63	48.6	22.9	82.9

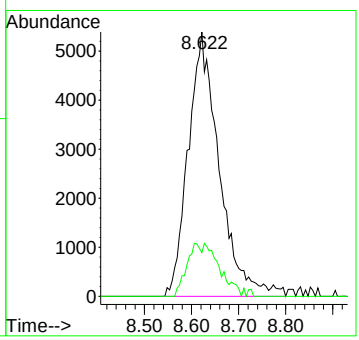


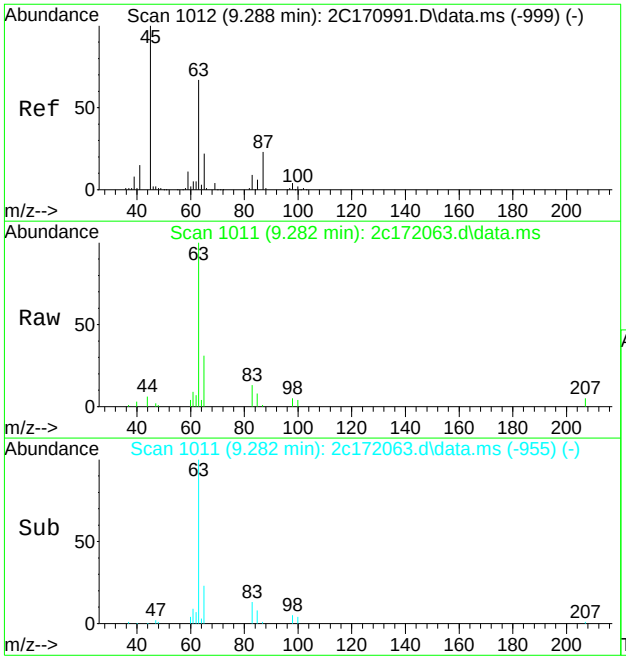


#26
methyl tert butyl ether
Concen: 1.96 ug/L
RT: 8.622 min Scan# 885
Delta R.T. 0.000 min
Lab File: 2c172063.d
Acq: 28 Nov 2019 3:03 am

Tgt Ion: 73 Resp: 24615

Ion	Ratio	Lower	Upper
73	100		
57	16.6	0.0	52.3

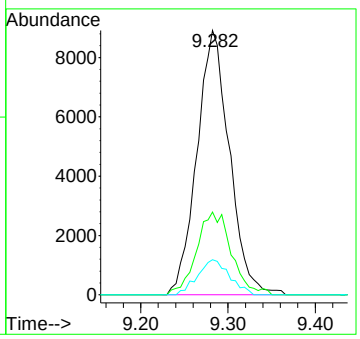


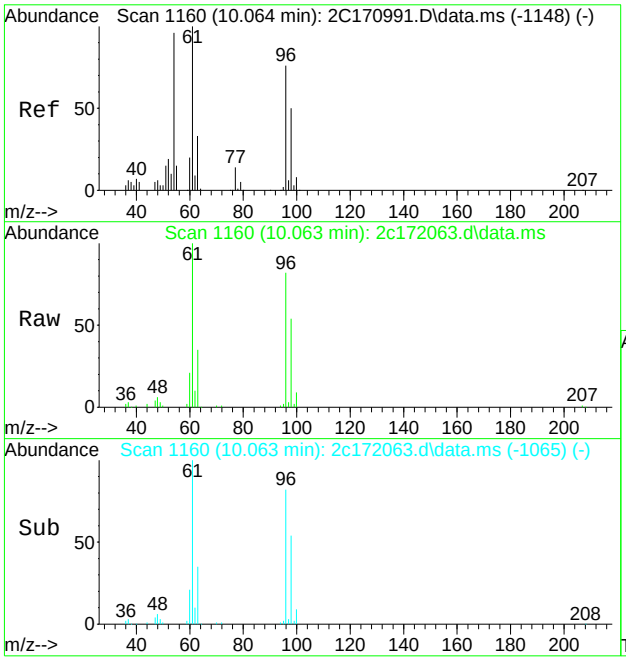


#30
1,1-dichloroethane
Concen: 3.32 ug/L
RT: 9.282 min Scan# 1011
Delta R.T. -0.005 min
Lab File: 2c172063.d
Acq: 28 Nov 2019 3:03 am

Tgt Ion: 63 Resp: 23084

Ion	Ratio	Lower	Upper
63	100		
65	31.3	2.7	62.7
83	13.2	0.0	42.7

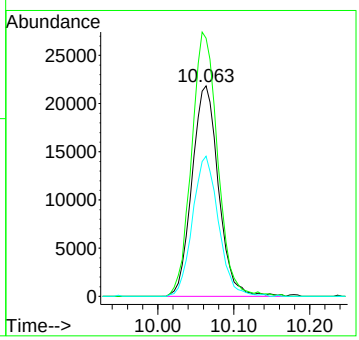


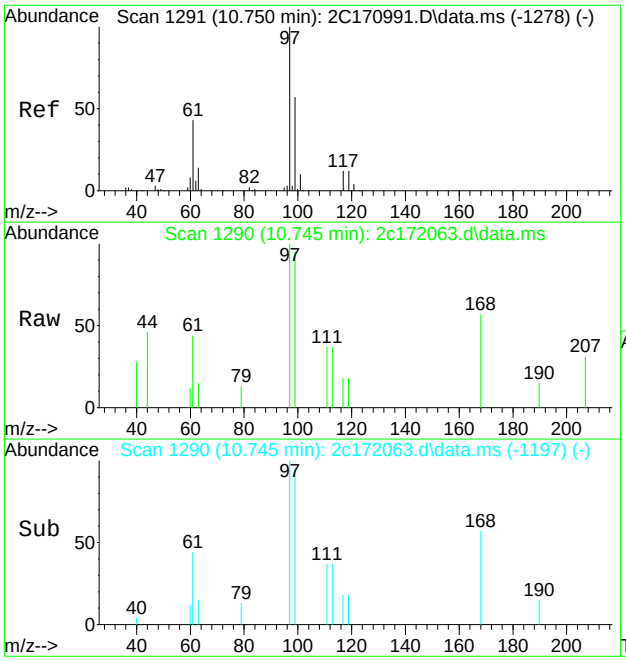


#38
cis-1,2-dichloroethene
Concen: 12.23 ug/L
RT: 10.063 min Scan# 1160
Delta R.T. 0.000 min
Lab File: 2c172063.d
Acq: 28 Nov 2019 3:03 am

Tgt Ion: 96 Resp: 52909

Ion	Ratio	Lower	Upper
96	100		
61	122.6	108.1	168.1
98	66.6	36.0	96.0

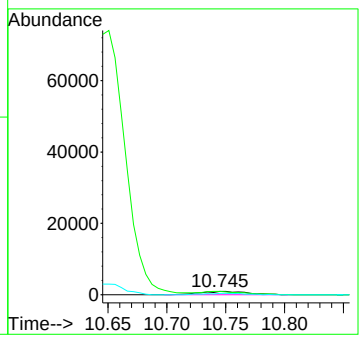


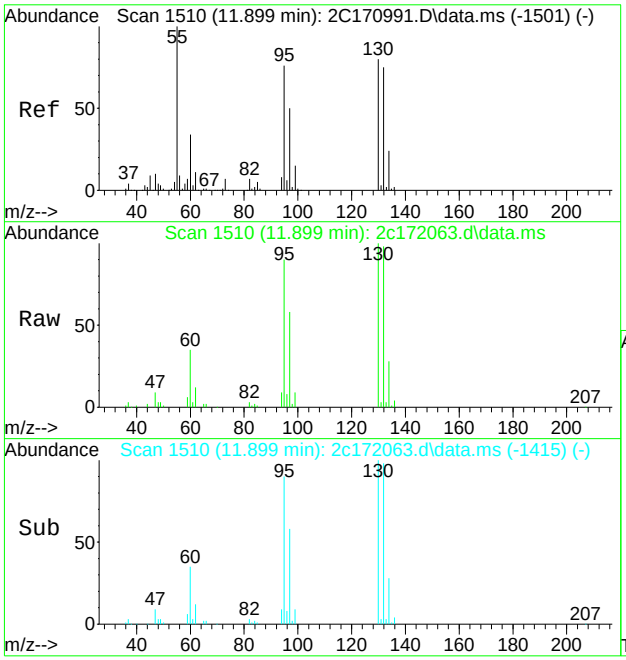


#46
1,1,1-trichloroethane
Concen: 0.44 ug/L
RT: 10.745 min Scan# 1290
Delta R.T. -0.010 min
Lab File: 2c172063.d
Acq: 28 Nov 2019 3:03 am

Tgt Ion: 97 Resp: 2690

Ion	Ratio	Lower	Upper
97	100		
99	81.6	36.0	96.0
61	44.1	12.8	72.8

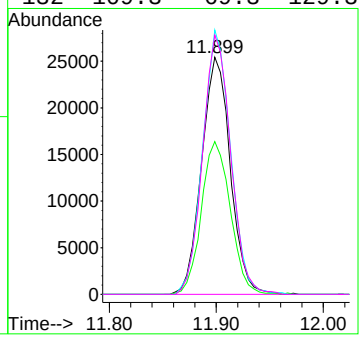


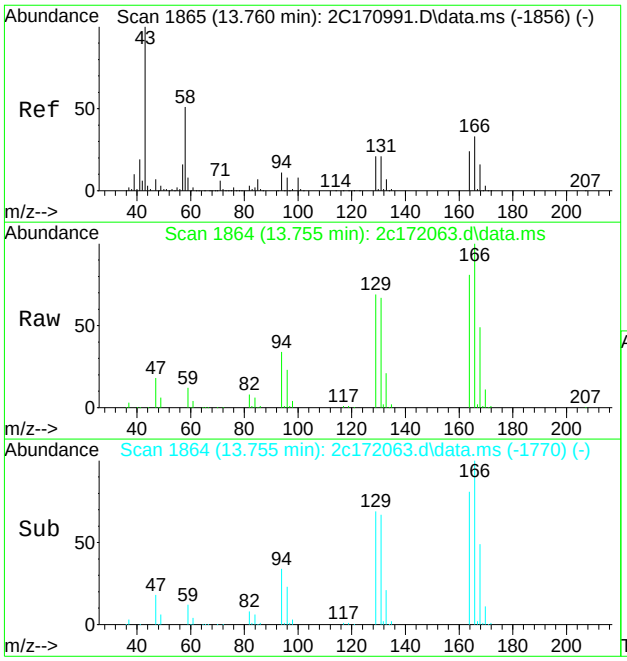


#62
trichloroethene
Concen: 12.96 ug/L
RT: 11.899 min Scan# 1510
Delta R.T. 0.000 min
Lab File: 2c172063.d
Acq: 28 Nov 2019 3:03 am

Tgt Ion: 95 Resp: 47580

Ion	Ratio	Lower	Upper
95	100		
97	64.4	35.3	95.3
130	111.5	74.7	134.7
132	109.3	69.3	129.3

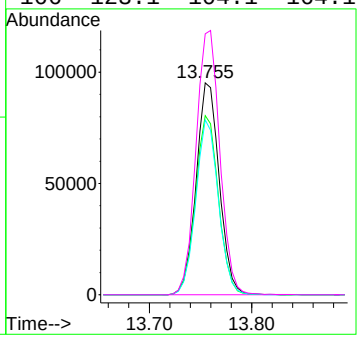




#81
tetrachloroethene
Concen: 46.29 ug/L
RT: 13.755 min Scan# 1864
Delta R.T. -0.005 min
Lab File: 2c172063.d
Acq: 28 Nov 2019 3:03 am

Tgt Ion:164 Resp: 149978

Ion	Ratio	Lower	Upper
164	100		
129	84.5	57.4	117.4
131	82.5	54.7	114.7
166	123.1	104.1	164.1



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172064.d
Acq On : 28 Nov 2019 3:32 am
Operator : EddieH
Sample : JC99215-2 Inst : Instrument #1
Misc : MS39494,V2C7731,5,,,,1
ALS Vial : 37 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:29:09 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

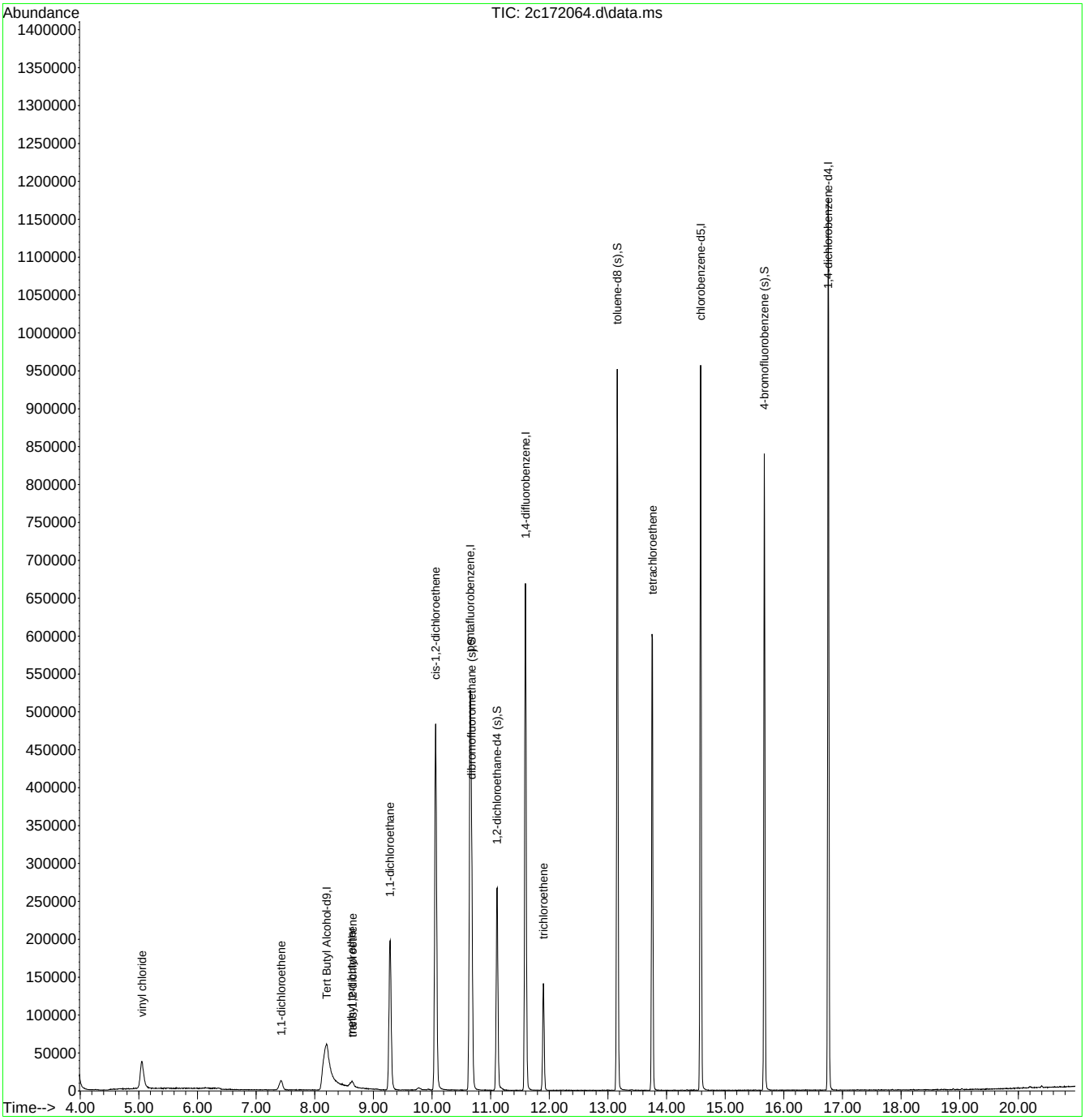
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	8.202	65	351000	500.00	ug/L	0.00
5) pentafluorobenzene	10.651	168	410618	50.00	ug/L	0.00
51) 1,4-difluorobenzene	11.594	114	599259	50.00	ug/L	0.00
74) chlorobenzene-d5	14.583	117	510601	50.00	ug/L	0.00
97) 1,4-dichlorobenzene-d4	16.759	152	298580	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.677	113	181134	48.26	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 96.52%			
52) 1,2-dichloroethane-d4 (s)	11.107	65	204965	46.37	ug/L	0.00
Spiked Amount 50.000	Range 81 - 124		Recovery = 92.74%			
75) toluene-d8 (s)	13.162	98	615121	50.81	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 101.62%			
98) 4-bromofluorobenzene (s)	15.668	95	231526	47.60	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 95.20%			
Target Compounds						Qvalue
9) vinyl chloride	5.056	62	96491	11.81	ug/L	99
19) 1,1-dichloroethene	7.426	96	11926	2.58	ug/L	83
26) methyl tert butyl ether	8.627	73	13285	0.95	ug/L	100
27) trans-1,2-dichloroethene	8.643	96	1751	0.39	ug/L #	76
30) 1,1-dichloroethane	9.282	63	263467	33.94	ug/L	98
38) cis-1,2-dichloroethene	10.063	96	277010	57.29	ug/L	90
62) trichloroethene	11.899	95	46386	11.39	ug/L	97
81) tetrachloroethene	13.760	164	144180	40.88	ug/L	95

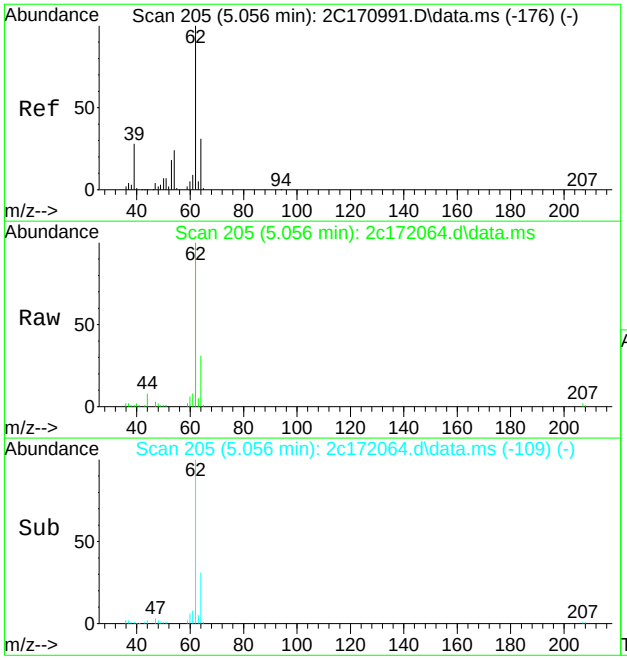
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172064.d
Acq On : 28 Nov 2019 3:32 am
Operator : EddieH
Sample : JC99215-2 Inst : Instrument #1
Misc : MS39494,V2C7731,5,,,,1
ALS Vial : 37 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:29:09 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

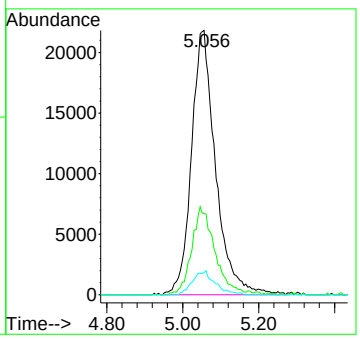


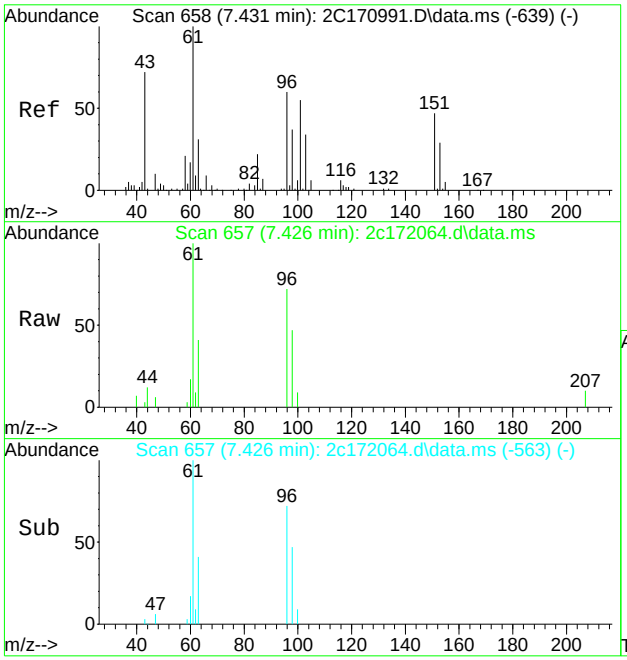


#9
vinyl chloride
Concen: 11.81 ug/L
RT: 5.056 min Scan# 205
Delta R.T. 0.005 min
Lab File: 2c172064.d
Acq: 28 Nov 2019 3:32 am

Tgt Ion: 62 Resp: 96491

Ion	Ratio	Lower	Upper
62	100		
64	30.8	1.3	61.3
61	8.4	0.0	39.0

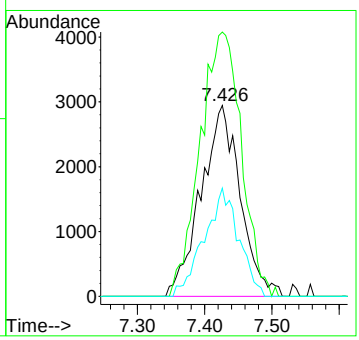


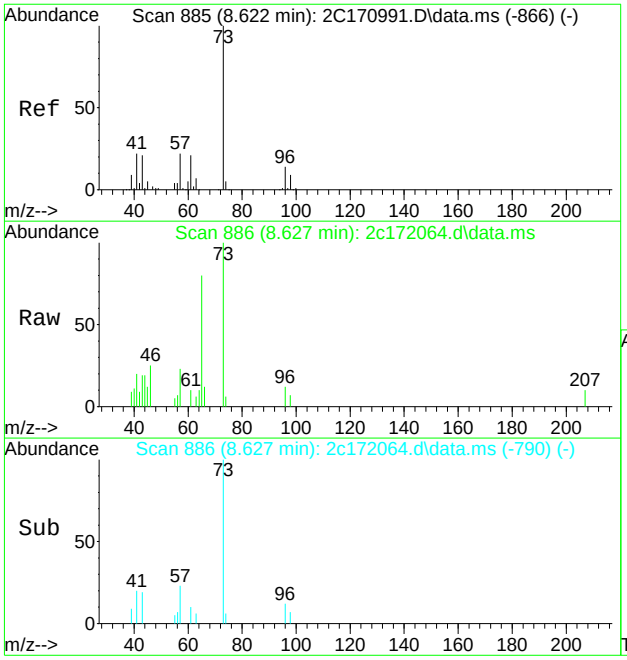


#19
1,1-dichloroethene
Concen: 2.58 ug/L
RT: 7.426 min Scan# 657
Delta R.T. -0.005 min
Lab File: 2c172064.d
Acq: 28 Nov 2019 3:32 am

Tgt Ion: 96 Resp: 11926

Ion	Ratio	Lower	Upper
96	100		
61	138.6	137.4	197.4
63	56.7	22.9	82.9

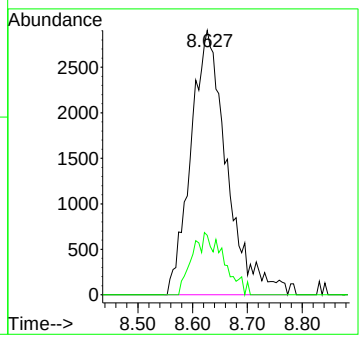


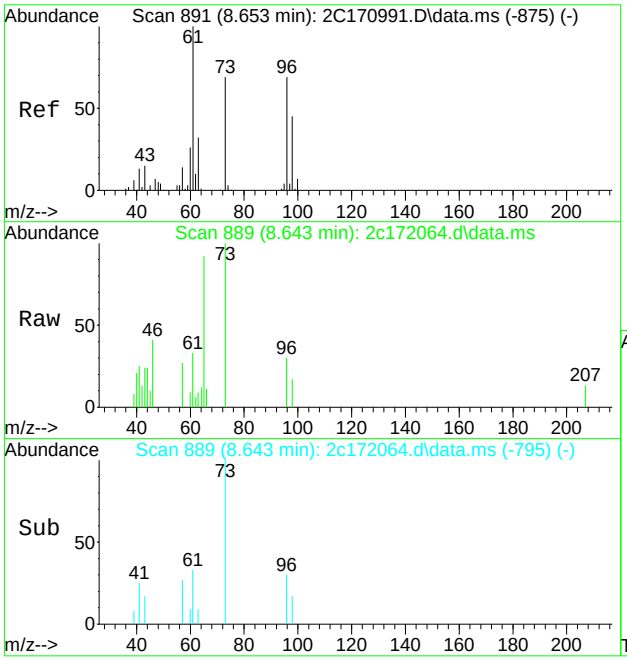


#26
methyl tert butyl ether
Concen: 0.95 ug/L
RT: 8.627 min Scan# 886
Delta R.T. 0.005 min
Lab File: 2c172064.d
Acq: 28 Nov 2019 3:32 am

Tgt Ion: 73 Resp: 13285

Ion	Ratio	Lower	Upper
73	100		
57	22.5	0.0	52.3

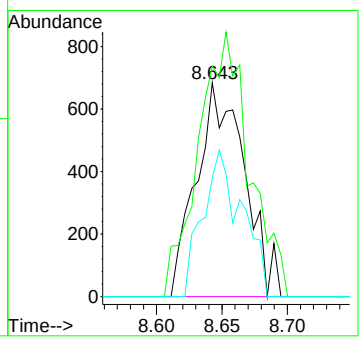


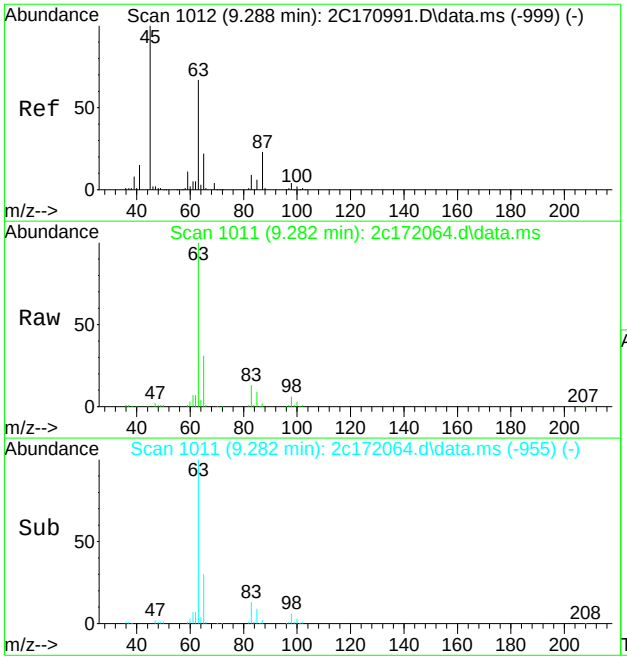


#27
trans-1,2-dichloroethene
Concen: 0.39 ug/L
RT: 8.643 min Scan# 889
Delta R.T. -0.005 min
Lab File: 2c172064.d
Acq: 28 Nov 2019 3:32 am

Tgt Ion: 96 Resp: 1751

Ion	Ratio	Lower	Upper
96	100		
61	107.7	114.5	174.5#
98	55.4	35.3	95.3

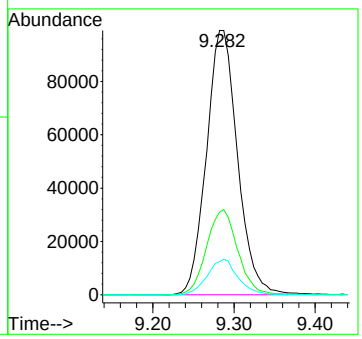


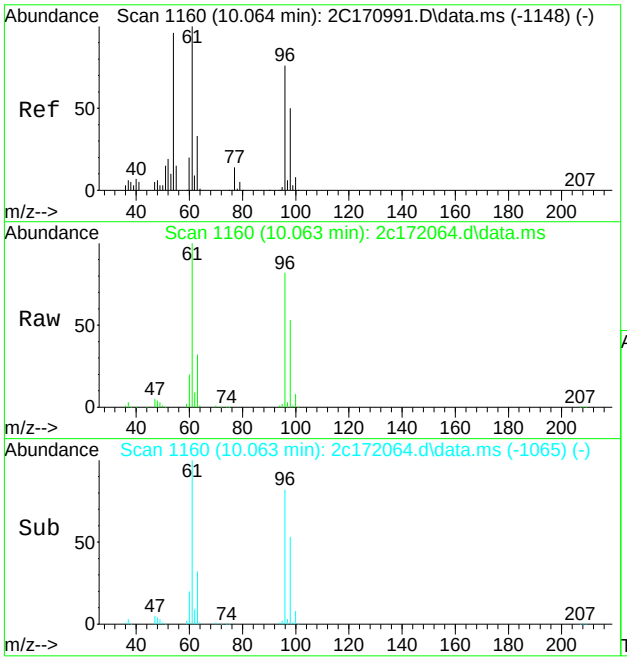


#30
1,1-dichloroethane
Concen: 33.94 ug/L
RT: 9.282 min Scan# 1011
Delta R.T. -0.005 min
Lab File: 2c172064.d
Acq: 28 Nov 2019 3:32 am

Tgt Ion: 63 Resp: 263467

Ion	Ratio	Lower	Upper
63	100		
65	31.3	2.7	62.7
83	12.6	0.0	42.7

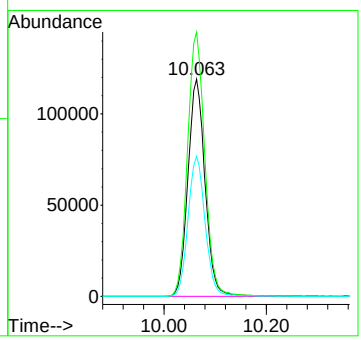


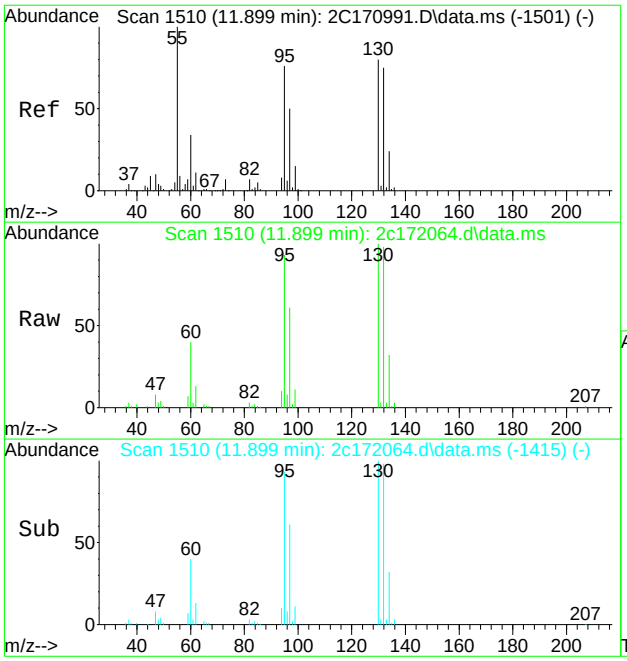


#38
cis-1,2-dichloroethene
Concen: 57.29 ug/L
RT: 10.063 min Scan# 1160
Delta R.T. 0.000 min
Lab File: 2c172064.d
Acq: 28 Nov 2019 3:32 am

Tgt Ion: 96 Resp: 277010

Ion	Ratio	Lower	Upper
96	100		
61	121.7	108.1	168.1
98	64.5	36.0	96.0

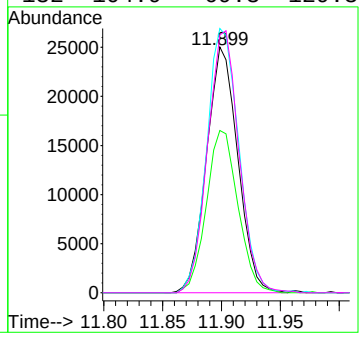


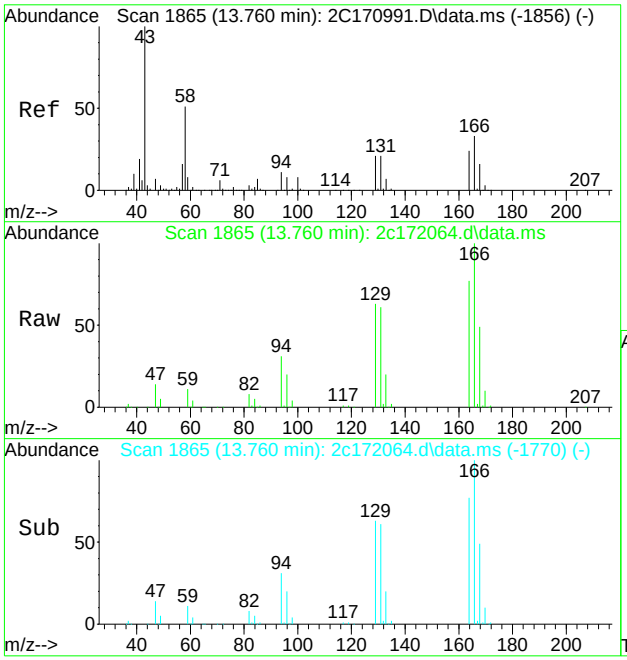


#62
trichloroethene
Concen: 11.39 ug/L
RT: 11.899 min Scan# 1510
Delta R.T. 0.000 min
Lab File: 2c172064.d
Acq: 28 Nov 2019 3:32 am

Tgt Ion: 95 Resp: 46386

Ion	Ratio	Lower	Upper
95	100		
97	66.0	35.3	95.3
130	107.5	74.7	134.7
132	104.9	69.3	129.3

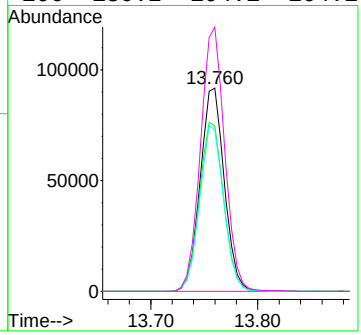




#81
tetrachloroethene
Concen: 40.88 ug/L
RT: 13.760 min Scan# 1865
Delta R.T. 0.000 min
Lab File: 2c172064.d
Acq: 28 Nov 2019 3:32 am

Tgt Ion:164 Resp: 144180

Ion	Ratio	Lower	Upper
164	100		
129	81.4	57.4	117.4
131	79.5	54.7	114.7
166	130.2	104.1	164.1



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172065.d
Acq On : 28 Nov 2019 4:01 am
Operator : EddieH
Sample : JC99215-3 Inst : Instrument #1
Misc : MS39494,V2C7731,5,,,,1
ALS Vial : 38 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:30:27 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

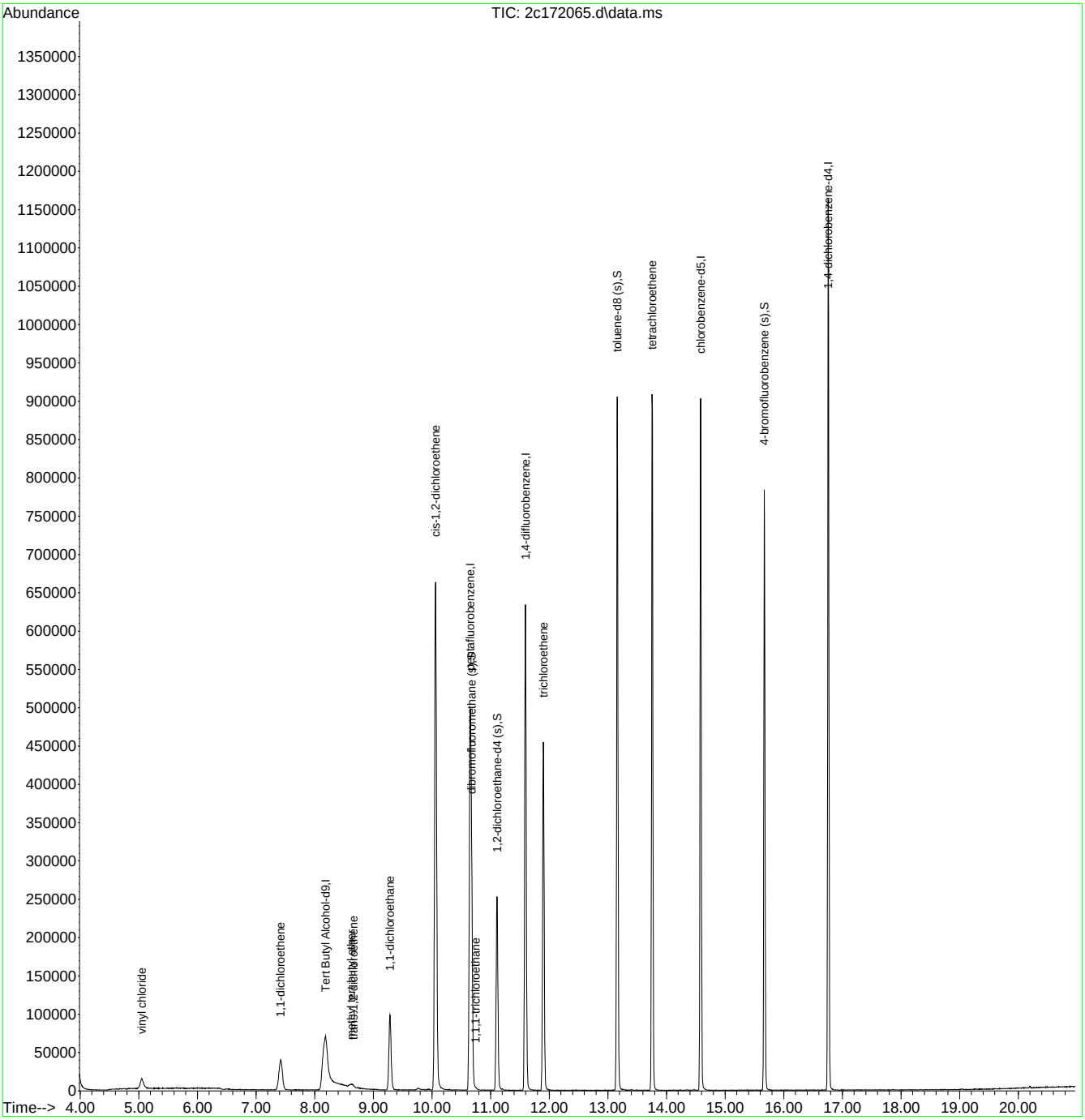
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	8.186	65	331935	500.00	ug/L	-0.01
5) pentafluorobenzene	10.651	168	384998	50.00	ug/L	0.00
51) 1,4-difluorobenzene	11.594	114	563119	50.00	ug/L	0.00
74) chlorobenzene-d5	14.583	117	484138	50.00	ug/L	0.00
97) 1,4-dichlorobenzene-d4	16.759	152	292971	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.677	113	172005	48.88	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 97.76%			
52) 1,2-dichloroethane-d4 (s)	11.112	65	193870	46.68	ug/L	0.00
Spiked Amount 50.000	Range 81 - 124		Recovery = 93.36%			
75) toluene-d8 (s)	13.162	98	584034	50.88	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 101.76%			
98) 4-bromofluorobenzene (s)	15.668	95	219254	45.94	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 91.88%			
Target Compounds						Qvalue
9) vinyl chloride	5.051	62	34167	4.46	ug/L	96
19) 1,1-dichloroethene	7.416	96	37478	8.66	ug/L	86
26) methyl tert butyl ether	8.622	73	8183	0.62	ug/L	100
27) trans-1,2-dichloroethene	8.658	96	1004	0.24	ug/L	81
30) 1,1-dichloroethane	9.282	63	130699	17.96	ug/L	98
38) cis-1,2-dichloroethene	10.063	96	387291	85.43	ug/L	91
46) 1,1,1-trichloroethane	10.745	97	1702	0.27	ug/L	97
62) trichloroethene	11.898	95	152959	39.97	ug/L	94
81) tetrachloroethene	13.754	164	216723	64.80	ug/L	97

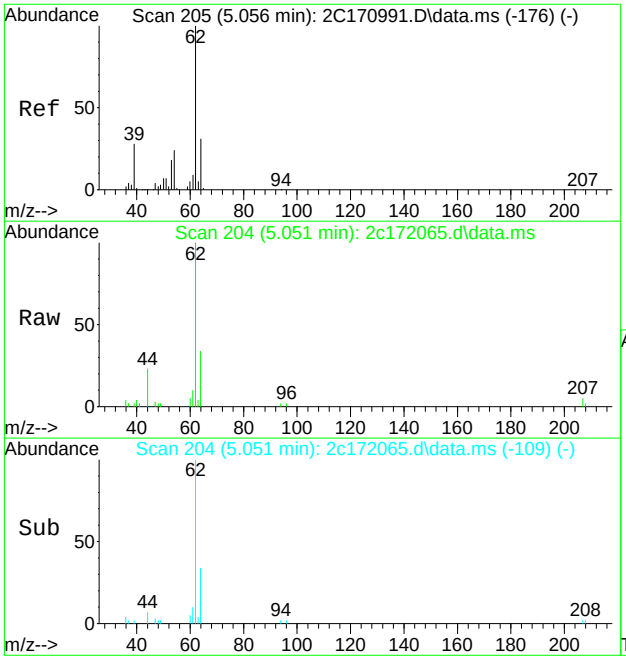
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172065.d
Acq On : 28 Nov 2019 4:01 am
Operator : EddieH
Sample : JC99215-3 Inst : Instrument #1
Misc : MS39494,V2C7731,5,,,,1
ALS Vial : 38 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:30:27 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

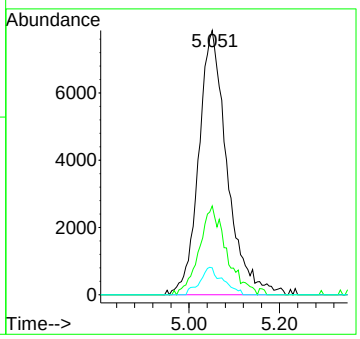


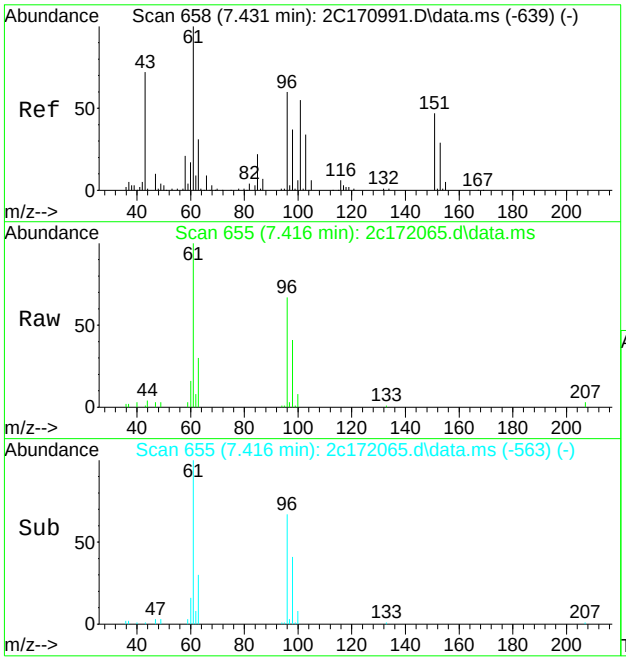


#9
vinyl chloride
Concen: 4.46 ug/L
RT: 5.051 min Scan# 204
Delta R.T. -0.000 min
Lab File: 2c172065.d
Acq: 28 Nov 2019 4:01 am

Tgt Ion: 62 Resp: 34167

Ion	Ratio	Lower	Upper
62	100		
64	33.6	1.3	61.3
61	10.2	0.0	39.0

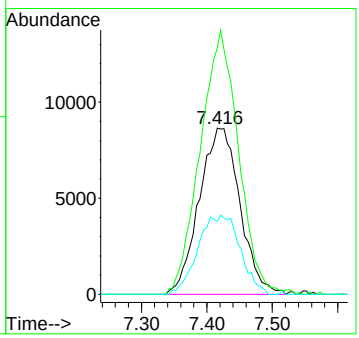


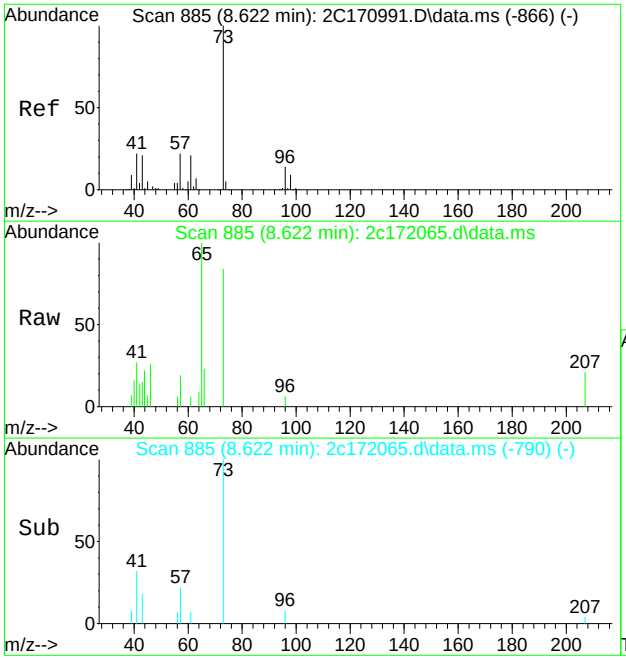


#19
1,1-dichloroethene
Concen: 8.66 ug/L
RT: 7.416 min Scan# 655
Delta R.T. -0.016 min
Lab File: 2c172065.d
Acq: 28 Nov 2019 4:01 am

Tgt Ion: 96 Resp: 37478

Ion	Ratio	Lower	Upper
96	100		
61	148.3	137.4	197.4
63	43.9	22.9	82.9

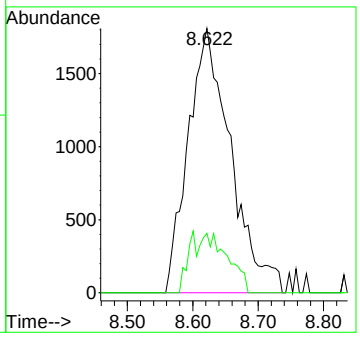


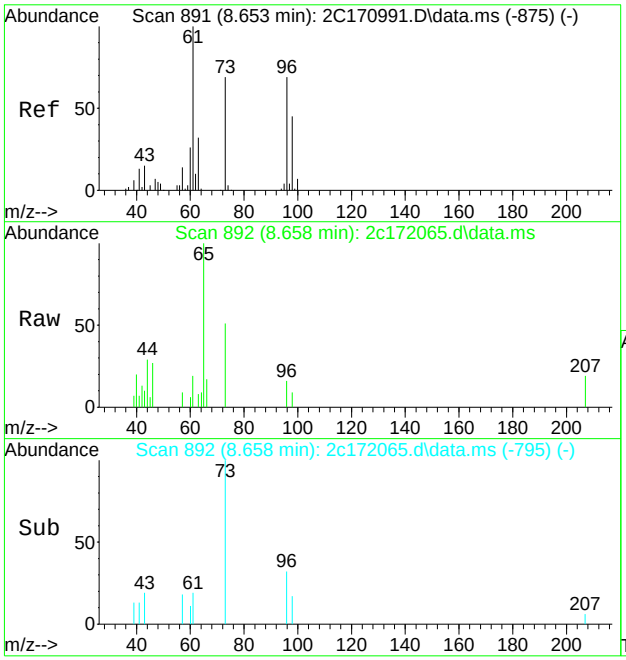


#26
methyl tert butyl ether
Concen: 0.62 ug/L
RT: 8.622 min Scan# 885
Delta R.T. -0.000 min
Lab File: 2c172065.d
Acq: 28 Nov 2019 4:01 am

Tgt Ion: 73 Resp: 8183

Ion	Ratio	Lower	Upper
73	100		
57	22.5	0.0	52.3

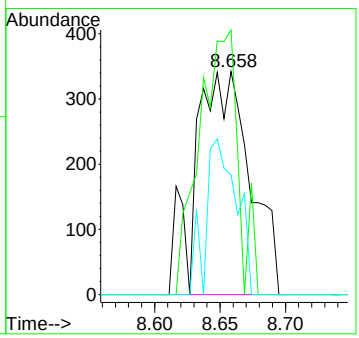


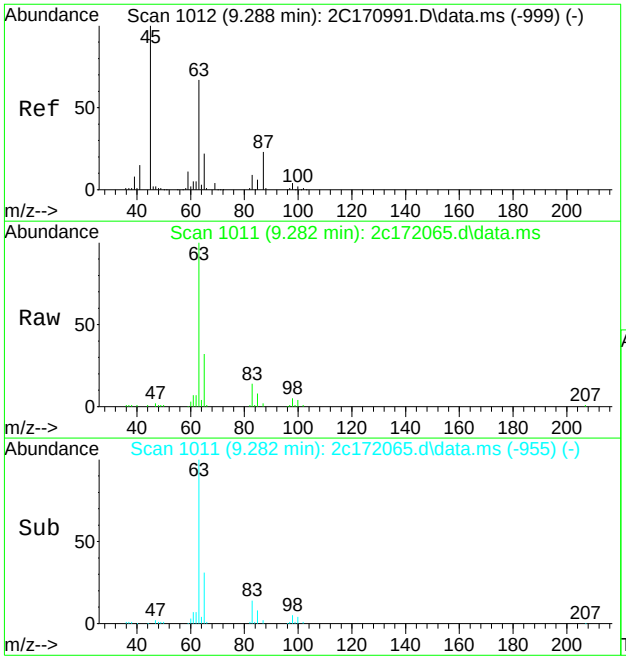


#27
trans-1,2-dichloroethene
Concen: 0.24 ug/L
RT: 8.658 min Scan# 892
Delta R.T. 0.010 min
Lab File: 2c172065.d
Acq: 28 Nov 2019 4:01 am

Tgt Ion: 96 Resp: 1004

Ion	Ratio	Lower	Upper
96	100		
61	118.7	114.5	174.5
98	53.8	35.3	95.3

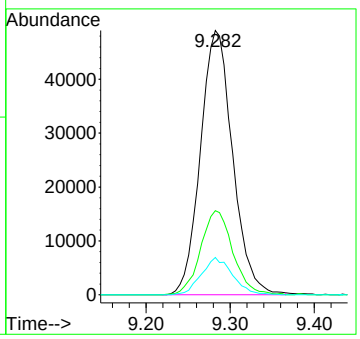


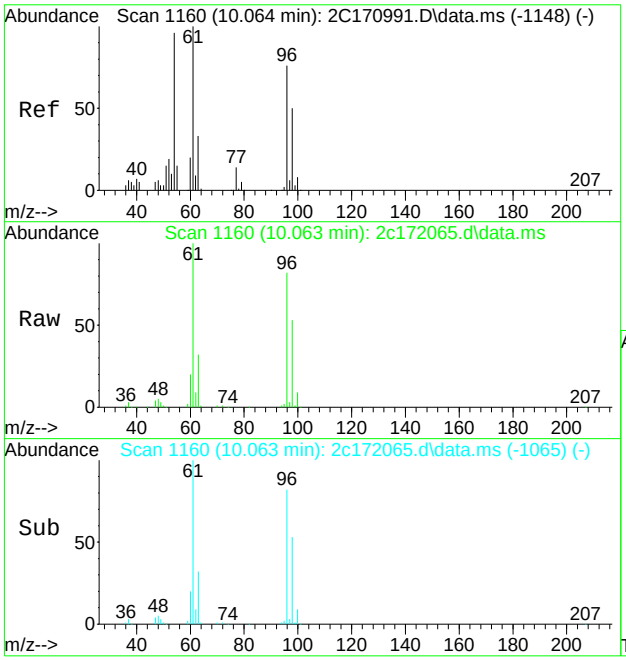


#30
1,1-dichloroethane
Concen: 17.96 ug/L
RT: 9.282 min Scan# 1011
Delta R.T. -0.005 min
Lab File: 2c172065.d
Acq: 28 Nov 2019 4:01 am

Tgt Ion: 63 Resp: 130699

Ion	Ratio	Lower	Upper
63	100		
65	31.8	2.7	62.7
83	14.1	0.0	42.7

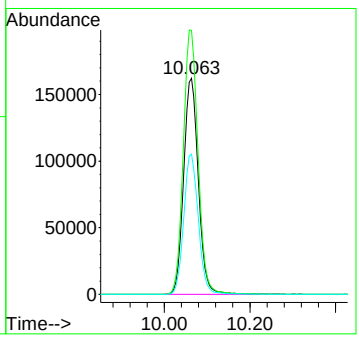


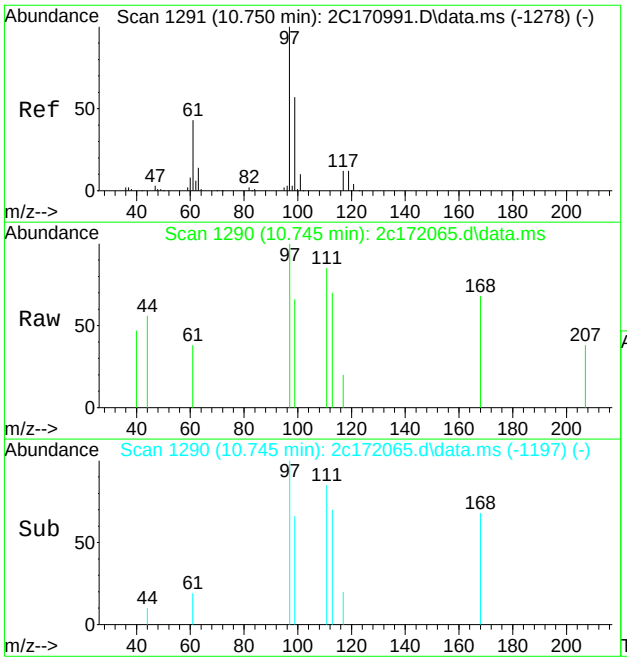


#38
cis-1,2-dichloroethene
Concen: 85.43 ug/L
RT: 10.063 min Scan# 1160
Delta R.T. -0.000 min
Lab File: 2c172065.d
Acq: 28 Nov 2019 4:01 am

Tgt Ion: 96 Resp: 387291

Ion	Ratio	Lower	Upper
96	100		
61	122.2	108.1	168.1
98	64.8	36.0	96.0

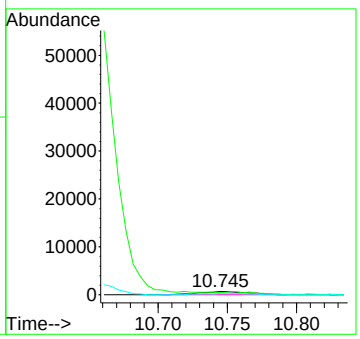


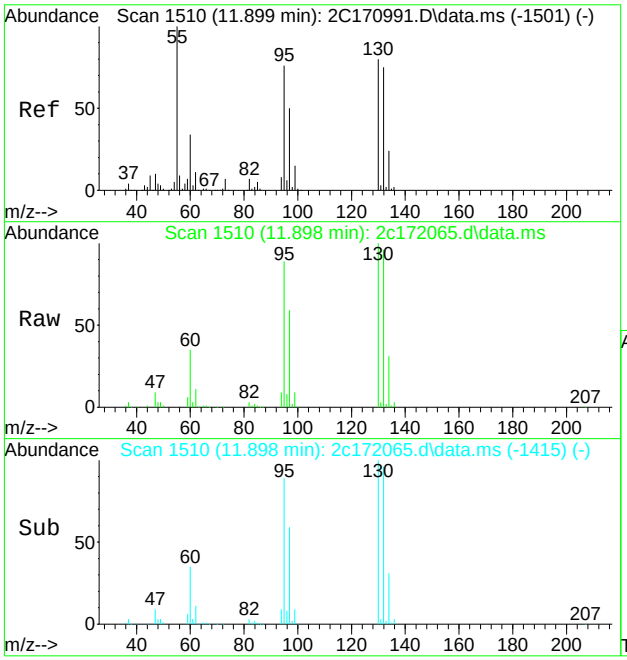


#46
1,1,1-trichloroethane
Concen: 0.27 ug/L
RT: 10.745 min Scan# 1290
Delta R.T. -0.011 min
Lab File: 2c172065.d
Acq: 28 Nov 2019 4:01 am

Tgt Ion: 97 Resp: 1702

Ion	Ratio	Lower	Upper
97	100		
99	65.8	36.0	96.0
61	38.3	12.8	72.8

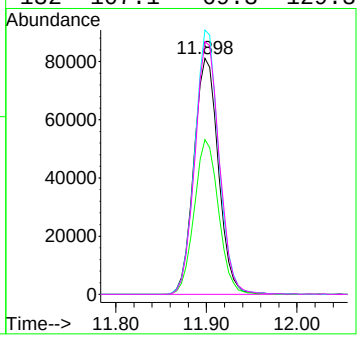


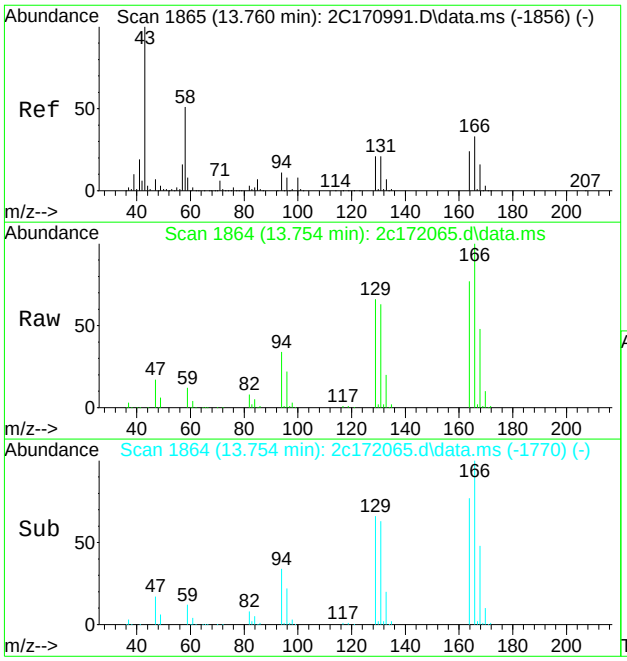


#62
trichloroethene
Concen: 39.97 ug/L
RT: 11.898 min Scan# 1510
Delta R.T. -0.000 min
Lab File: 2c172065.d
Acq: 28 Nov 2019 4:01 am

Tgt Ion: 95 Resp: 152959

Ion	Ratio	Lower	Upper
95	100		
97	65.6	35.3	95.3
130	112.0	74.7	134.7
132	107.1	69.3	129.3

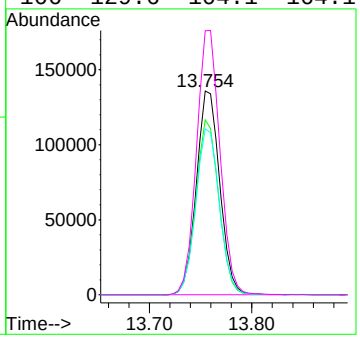




#81
tetrachloroethene
Concen: 64.80 ug/L
RT: 13.754 min Scan# 1864
Delta R.T. -0.005 min
Lab File: 2c172065.d
Acq: 28 Nov 2019 4:01 am

Tgt Ion:164 Resp: 216723

Ion	Ratio	Lower	Upper
164	100		
129	85.8	57.4	117.4
131	81.5	54.7	114.7
166	129.6	104.1	164.1



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172056.d
Acq On : 27 Nov 2019 11:43 pm
Operator : EddieH
Sample : JC99215-4 Inst : Instrument #1
Misc : MS39494,V2C7731,5,,,,5
ALS Vial : 29 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:20:56 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

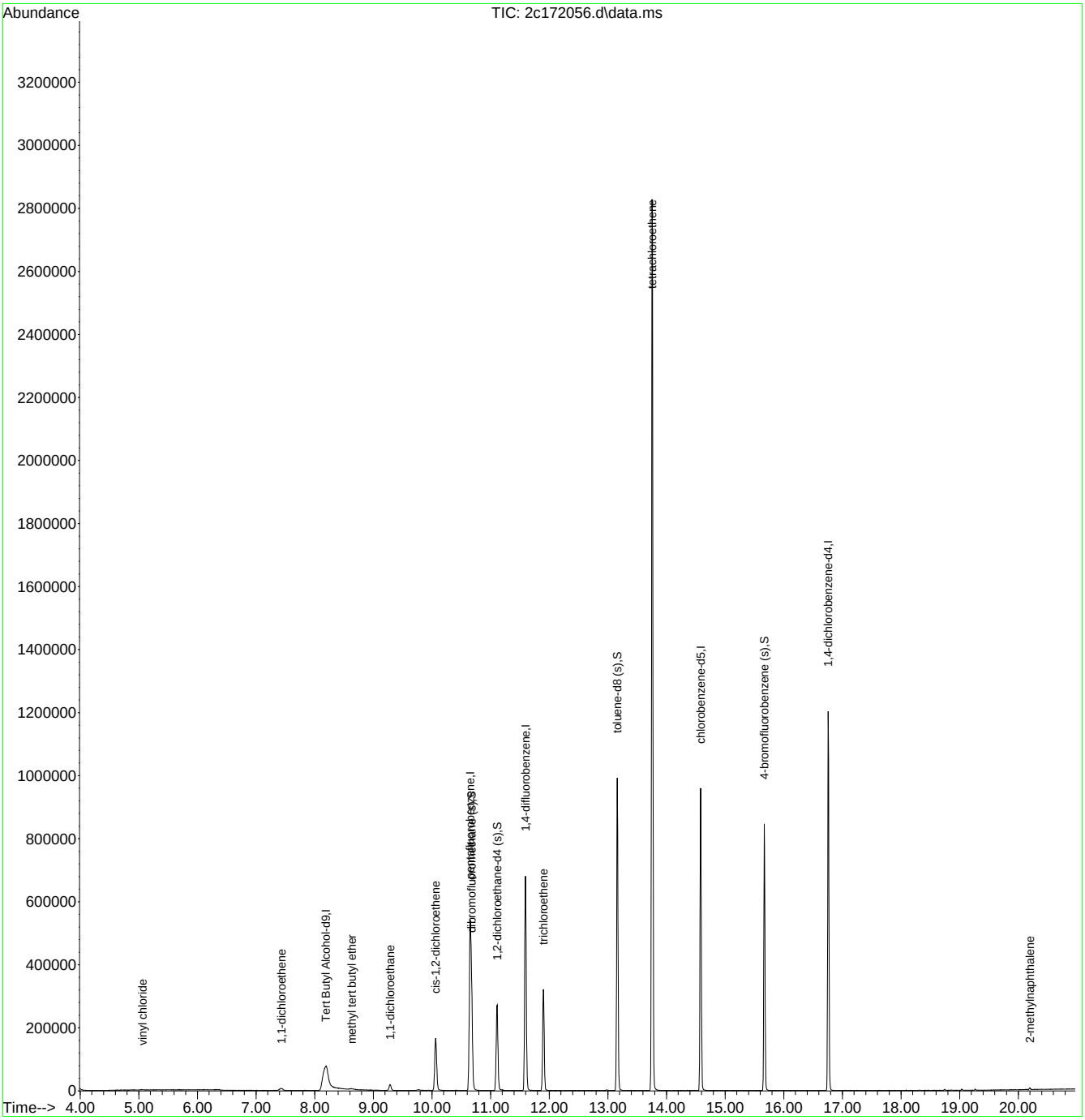
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	8.192	65	367128	500.00	ug/L	0.00
5) pentafluorobenzene	10.651	168	416888	50.00	ug/L	0.00
51) 1,4-difluorobenzene	11.595	114	604965	50.00	ug/L	0.00
74) chlorobenzene-d5	14.583	117	511781	50.00	ug/L	0.00
97) 1,4-dichlorobenzene-d4	16.759	152	303709	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.677	113	184122	48.32	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 96.64%			
52) 1,2-dichloroethane-d4 (s)	11.112	65	207480	46.50	ug/L	0.00
Spiked Amount 50.000	Range 81 - 124		Recovery = 93.00%			
75) toluene-d8 (s)	13.162	98	627062	51.68	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 103.36%			
98) 4-bromofluorobenzene (s)	15.668	95	236588	47.82	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 95.64%			
Target Compounds						Qvalue
9) vinyl chloride	5.062	62	2560	0.31	ug/L	90
19) 1,1-dichloroethene	7.432	96	6476	1.38	ug/L	89
26) methyl tert butyl ether	8.632	73	5214	0.37	ug/L	93
30) 1,1-dichloroethane	9.288	63	25803	3.27	ug/L	100
38) cis-1,2-dichloroethene	10.064	96	94085	19.17	ug/L	91
62) trichloroethene	11.899	95	107841	26.23	ug/L	96
81) tetrachloroethene	13.755	164	679419	192.18	ug/L	98
124) 2-methylnaphthalene	20.198	142	3061	2.22	ug/L	92

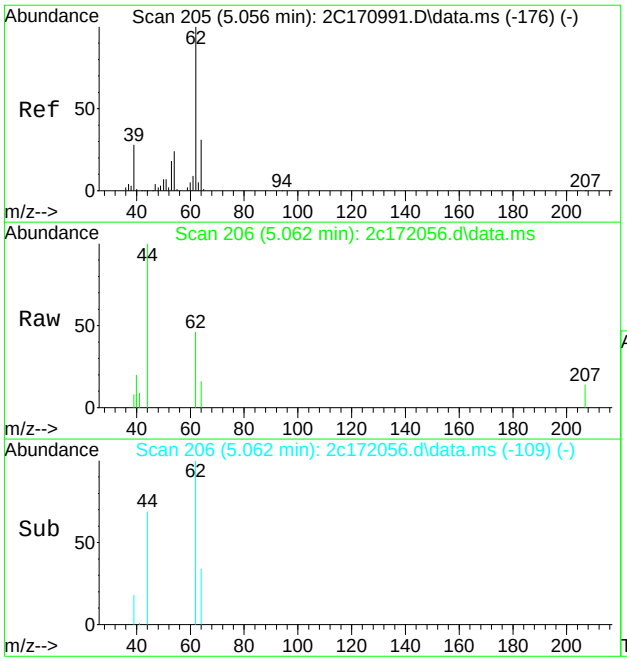
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172056.d
Acq On : 27 Nov 2019 11:43 pm
Operator : EddieH
Sample : JC99215-4 Inst : Instrument #1
Misc : MS39494,V2C7731,5,,,,5
ALS Vial : 29 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:20:56 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

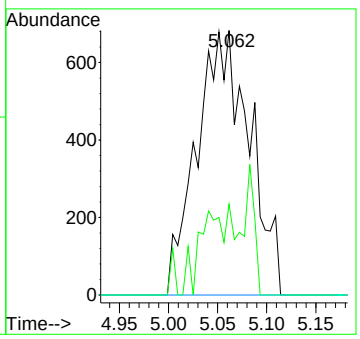


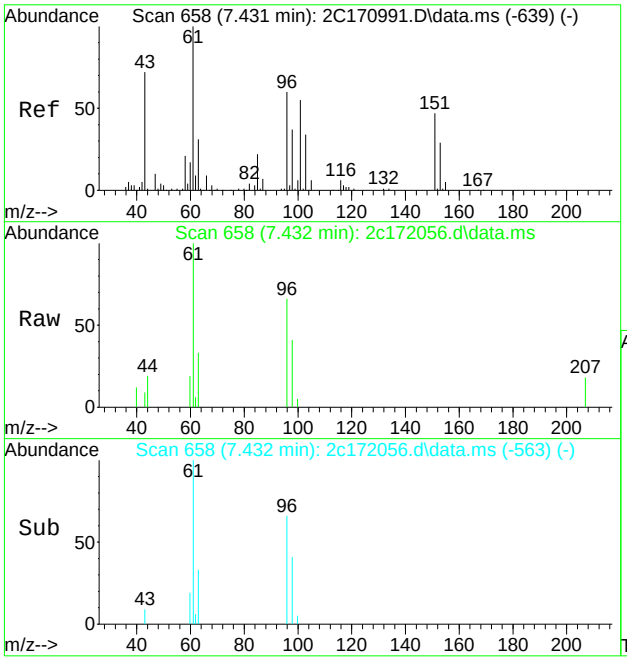


#9
vinyl chloride
Concen: 0.31 ug/L
RT: 5.062 min Scan# 206
Delta R.T. 0.011 min
Lab File: 2c172056.d
Acq: 27 Nov 2019 11:43 pm

Tgt Ion: 62 Resp: 2560

Ion	Ratio	Lower	Upper
62	100		
64	34.3	1.3	61.3
61	0.0	0.0	39.0

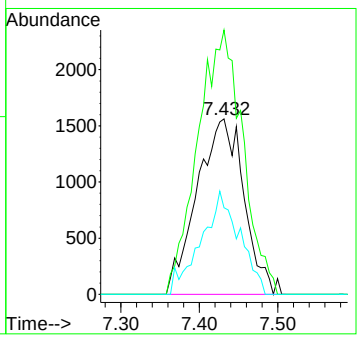


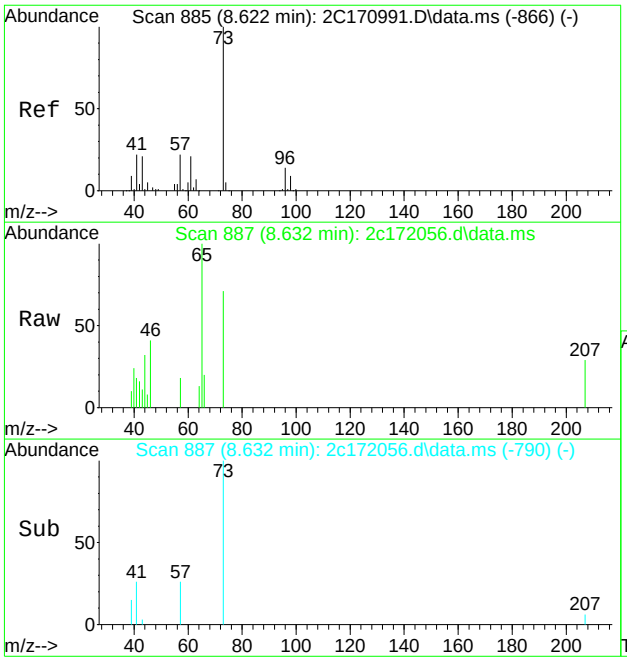


#19
1,1-dichloroethene
Concen: 1.38 ug/L
RT: 7.432 min Scan# 658
Delta R.T. 0.000 min
Lab File: 2c172056.d
Acq: 27 Nov 2019 11:43 pm

Tgt Ion: 96 Resp: 6476

Ion	Ratio	Lower	Upper
96	100		
61	150.7	137.4	197.4
63	49.4	22.9	82.9

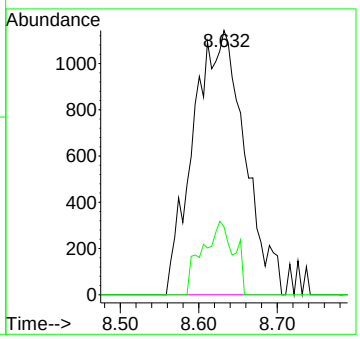


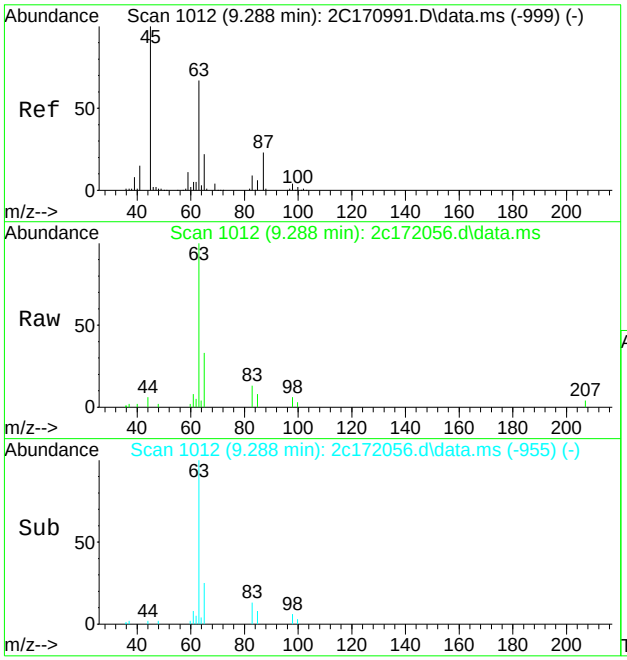


#26
methyl tert butyl ether
Concen: 0.37 ug/L
RT: 8.632 min Scan# 887
Delta R.T. 0.011 min
Lab File: 2c172056.d
Acq: 27 Nov 2019 11:43 pm

Tgt Ion: 73 Resp: 5214

Ion	Ratio	Lower	Upper
73	100		
57	25.7	0.0	52.3

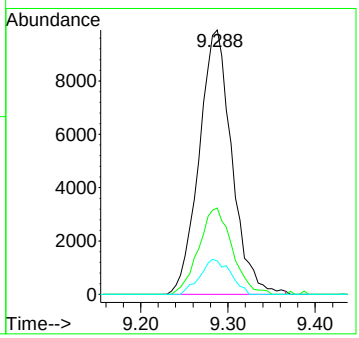


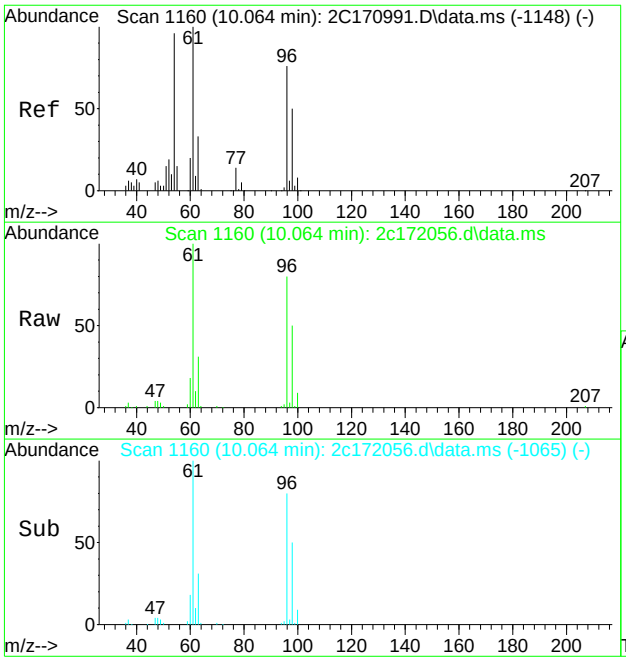


#30
1,1-dichloroethane
Concen: 3.27 ug/L
RT: 9.288 min Scan# 1012
Delta R.T. 0.000 min
Lab File: 2c172056.d
Acq: 27 Nov 2019 11:43 pm

Tgt Ion: 63 Resp: 25803

Ion	Ratio	Lower	Upper
63	100		
65	32.6	2.7	62.7
83	12.6	0.0	42.7

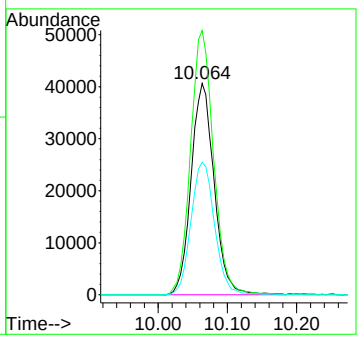


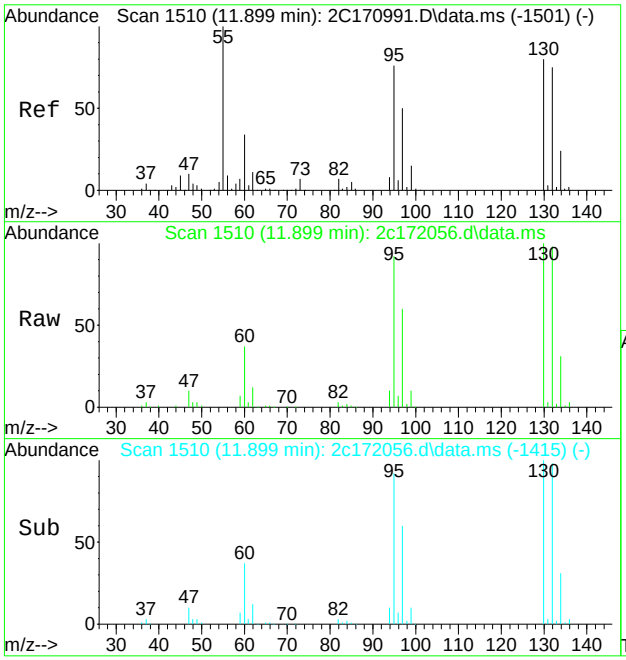


#38
cis-1,2-dichloroethene
Concen: 19.17 ug/L
RT: 10.064 min Scan# 1160
Delta R.T. 0.000 min
Lab File: 2c172056.d
Acq: 27 Nov 2019 11:43 pm

Tgt Ion: 96 Resp: 94085

Ion	Ratio	Lower	Upper
96	100		
61	125.2	108.1	168.1
98	62.8	36.0	96.0

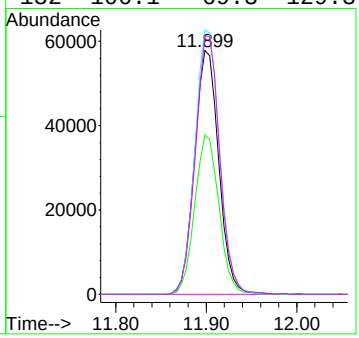


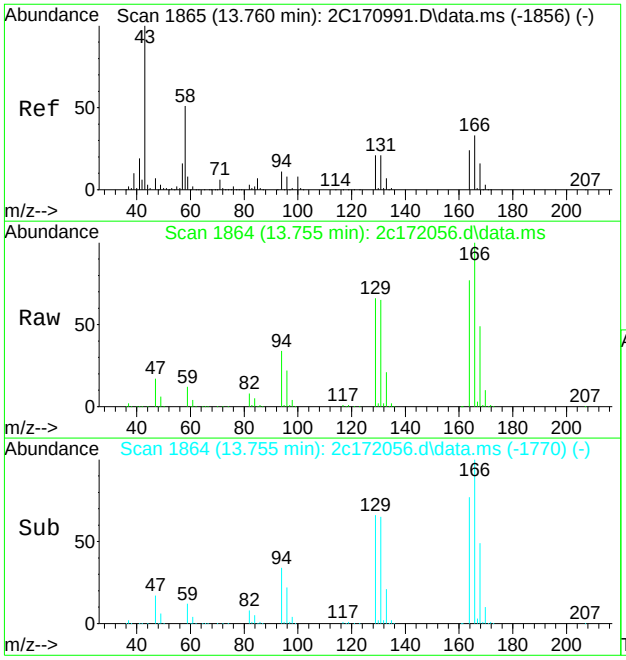


#62
trichloroethene
Concen: 26.23 ug/L
RT: 11.899 min Scan# 1510
Delta R.T. 0.000 min
Lab File: 2c172056.d
Acq: 27 Nov 2019 11:43 pm

Tgt Ion: 95 Resp: 107841

Ion	Ratio	Lower	Upper
95	100		
97	65.2	35.3	95.3
130	108.4	74.7	134.7
132	106.1	69.3	129.3

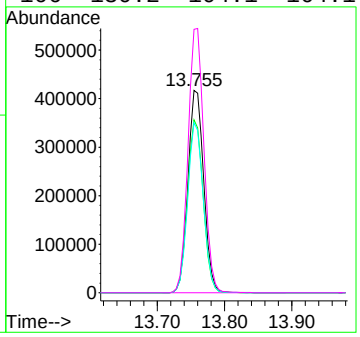


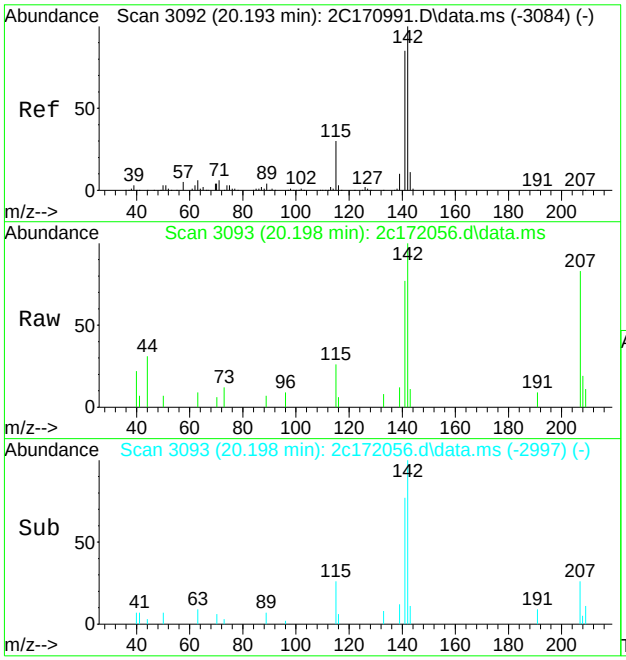


#81
tetrachloroethene
Concen: 192.18 ug/L
RT: 13.755 min Scan# 1864
Delta R.T. -0.005 min
Lab File: 2c172056.d
Acq: 27 Nov 2019 11:43 pm

Tgt Ion:164 Resp: 679419

Ion	Ratio	Lower	Upper
164	100		
129	85.5	57.4	117.4
131	84.1	54.7	114.7
166	130.2	104.1	164.1

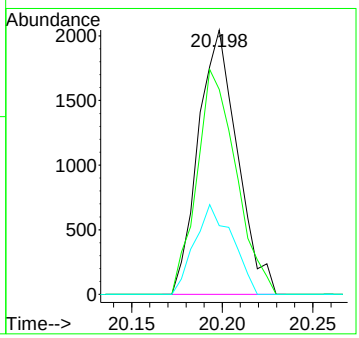




#124
2-methylnaphthalene
Concen: 2.22 ug/L
RT: 20.198 min Scan# 3093
Delta R.T. 0.005 min
Lab File: 2c172056.d
Acq: 27 Nov 2019 11:43 pm

Tgt Ion:142 Resp: 3061

Ion	Ratio	Lower	Upper
142	100		
141	77.5	65.4	105.4
115	26.0	0.0	59.8



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172055.d
Acq On : 27 Nov 2019 11:14 pm
Operator : EddieH
Sample : mb Inst : Instrument #1
Misc : MS37677,V2C7731,5,,,,1
ALS Vial : 28 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:19:23 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

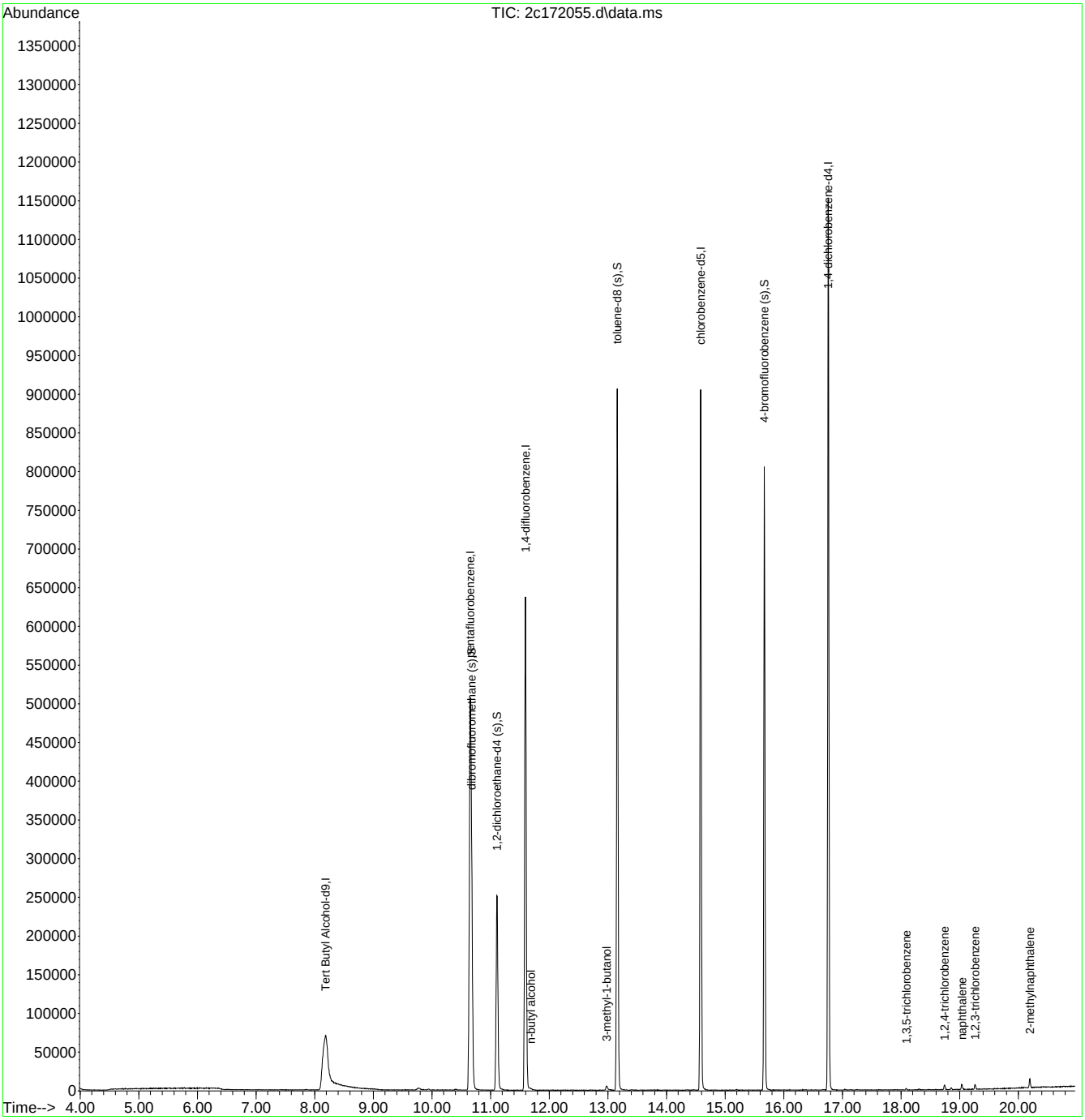
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	8.187	65	337373	500.00	ug/L	-0.01
5) pentafluorobenzene	10.651	168	387755	50.00	ug/L	0.00
51) 1,4-difluorobenzene	11.595	114	563614	50.00	ug/L	0.00
74) chlorobenzene-d5	14.583	117	486149	50.00	ug/L	0.00
97) 1,4-dichlorobenzene-d4	16.759	152	293579	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.677	113	170431	48.08	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 96.16%			
52) 1,2-dichloroethane-d4 (s)	11.107	65	194273	46.73	ug/L	0.00
Spiked Amount 50.000	Range 81 - 124		Recovery = 93.46%			
75) toluene-d8 (s)	13.162	98	587054	50.93	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 101.86%			
98) 4-bromofluorobenzene (s)	15.668	95	223158	46.66	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 93.32%			
Target Compounds						Qvalue
53) n-butyl alcohol	11.689	56	1597	6.41	ug/L	78
73) 3-methyl-1-butanol	12.979	55	2397	5.90	ug/L	80
116) 1,3,5-trichlorobenzene	18.091	180	912	0.10	ug/L #	72
118) 1,2,4-trichlorobenzene	18.741	180	1564	0.21	ug/L	76
121) naphthalene	19.045	128	6355	0.35	ug/L	93
122) 1,2,3-trichlorobenzene	19.265	180	2419	0.35	ug/L	80
124) 2-methylnaphthalene	20.198	142	5776	2.47	ug/L	94

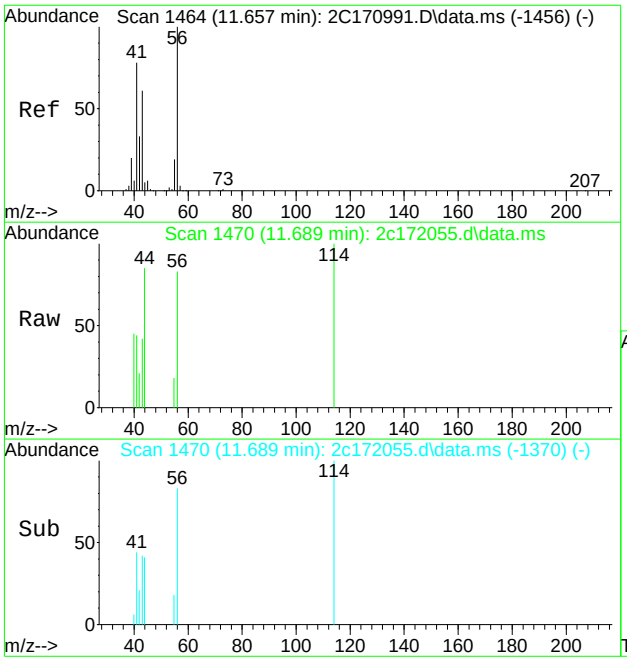
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172055.d
Acq On : 27 Nov 2019 11:14 pm
Operator : EddieH
Sample : mb Inst : Instrument #1
Misc : MS37677,V2C7731,5,,,,1
ALS Vial : 28 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:19:23 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

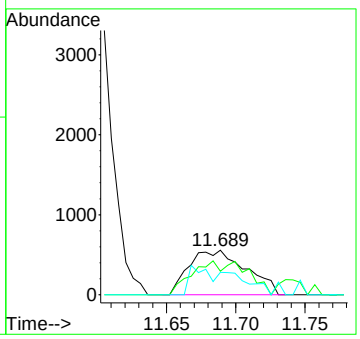


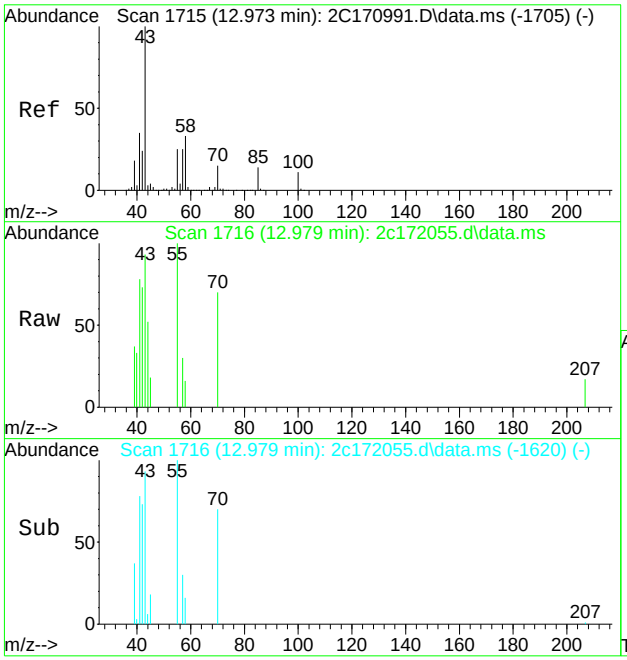


#53
n-butyl alcohol
Concen: 6.41 ug/L
RT: 11.689 min Scan# 1470
Delta R.T. 0.026 min
Lab File: 2c172055.d
Acq: 27 Nov 2019 11:14 pm

Tgt Ion: 56 Resp: 1597

Ion	Ratio	Lower	Upper
56	100		
41	53.0	47.7	107.7
43	50.4	30.8	90.8

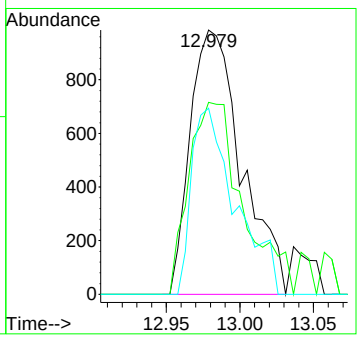


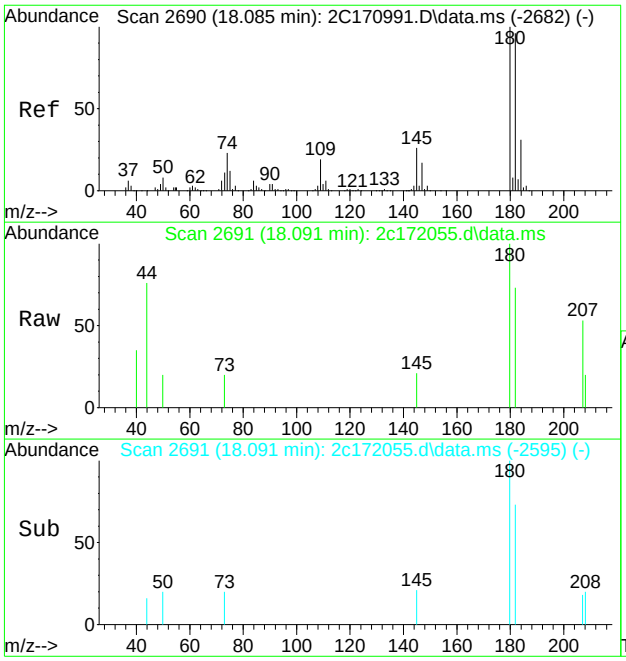


#73
3-methyl-1-butanol
Concen: 5.90 ug/L
RT: 12.979 min Scan# 1716
Delta R.T. 0.005 min
Lab File: 2c172055.d
Acq: 27 Nov 2019 11:14 pm

Tgt Ion: 55 Resp: 2397

Ion	Ratio	Lower	Upper
55	100		
42	72.6	64.9	124.9
70	70.4	28.5	88.5

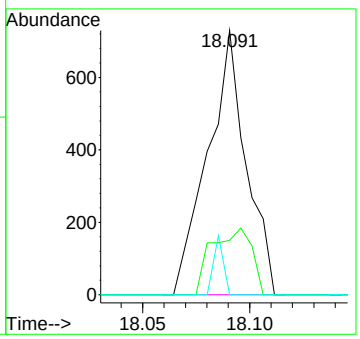


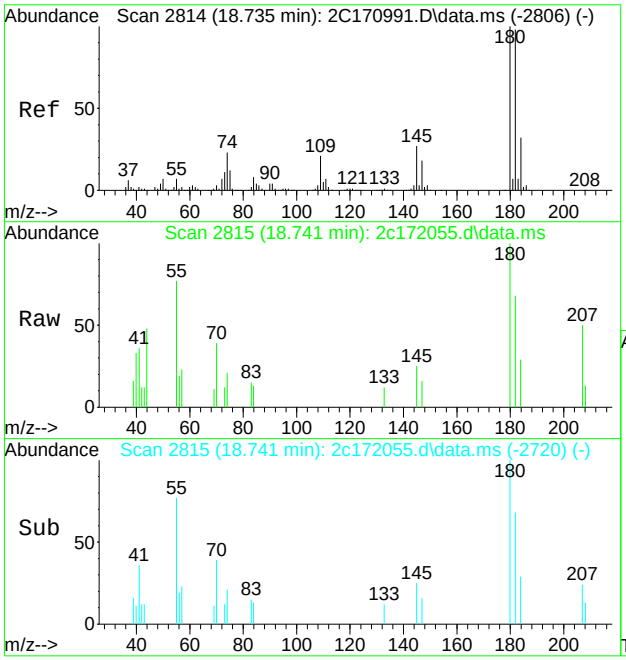


#116
1,3,5-trichlorobenzene
Concen: 0.10 ug/L
RT: 18.091 min Scan# 2691
Delta R.T. 0.005 min
Lab File: 2c172055.d
Acq: 27 Nov 2019 11:14 pm

Tgt Ion:180 Resp: 912

Ion	Ratio	Lower	Upper
180	100		
145	20.5	6.3	46.3
74	0.0	2.5	42.5#

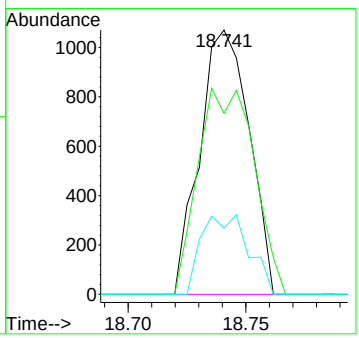


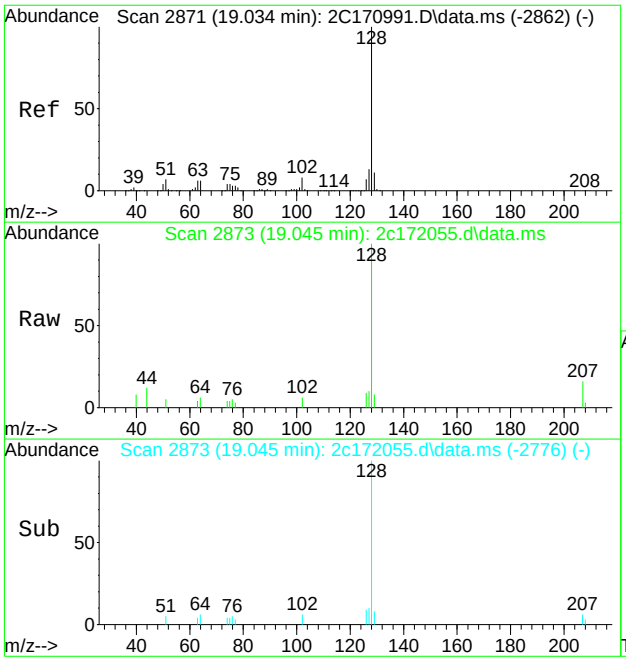


#118
1,2,4-trichlorobenzene
Concen: 0.21 ug/L
RT: 18.741 min Scan# 2815
Delta R.T. 0.000 min
Lab File: 2c172055.d
Acq: 27 Nov 2019 11:14 pm

Tgt Ion:180 Resp: 1564

Ion	Ratio	Lower	Upper
180	100		
182	68.4	67.8	127.8
145	25.0	0.0	57.0

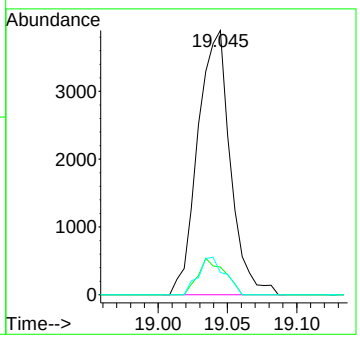


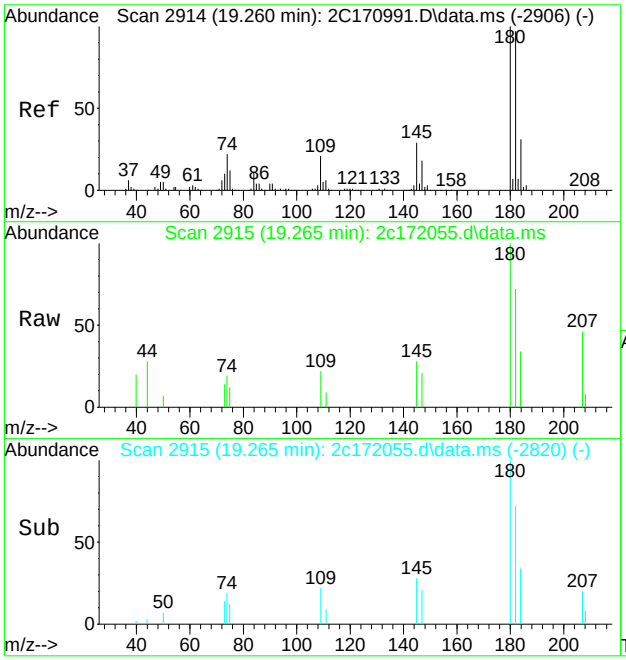


#121
naphthalene
Concen: 0.35 ug/L
RT: 19.045 min Scan# 2873
Delta R.T. 0.011 min
Lab File: 2c172055.d
Acq: 27 Nov 2019 11:14 pm

Tgt Ion:128 Resp: 6355

Ion	Ratio	Lower	Upper
128	100		
127	10.5	0.0	42.9
129	8.4	0.0	41.3

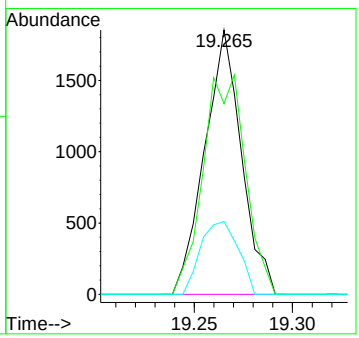


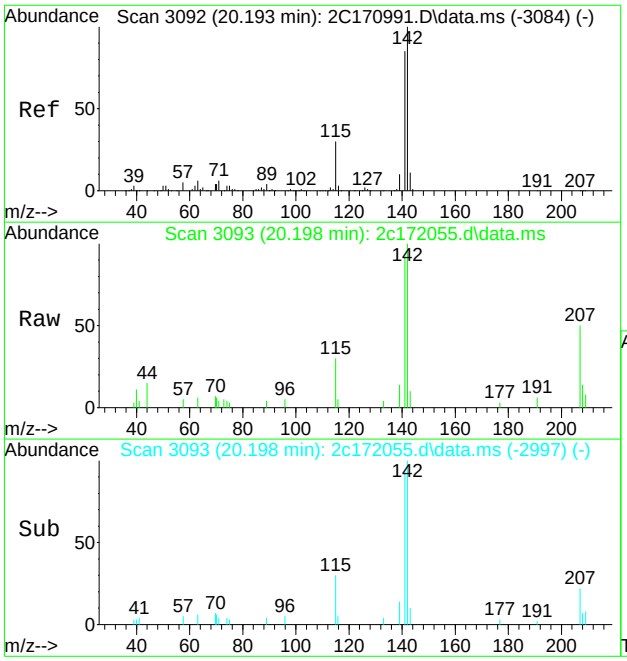


#122
1,2,3-trichlorobenzene
Concen: 0.35 ug/L
RT: 19.265 min Scan# 2915
Delta R.T. 0.000 min
Lab File: 2c172055.d
Acq: 27 Nov 2019 11:14 pm

Tgt Ion:180 Resp: 2419

Ion	Ratio	Lower	Upper
180	100		
182	72.1	67.2	127.2
145	27.6	0.0	59.3

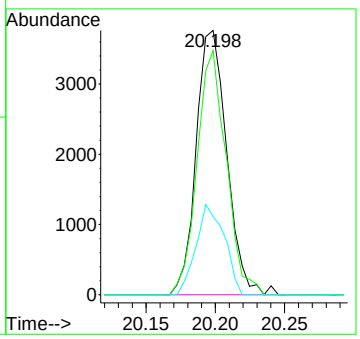




#124
2-methylnaphthalene
Concen: 2.47 ug/L
RT: 20.198 min Scan# 3093
Delta R.T. 0.005 min
Lab File: 2c172055.d
Acq: 27 Nov 2019 11:14 pm

Tgt Ion:142 Resp: 5776

Ion	Ratio	Lower	Upper
142	100		
141	92.3	65.4	105.4
115	29.6	0.0	59.8



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172052.d
Acq On : 27 Nov 2019 9:48 pm
Operator : EddieH
Sample : bs Inst : Instrument #1
Misc : MS39367,V2C7731,5,,,,1
ALS Vial : 25 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:17:07 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Tert Butyl Alcohol-d9	8.186	65	329892	500.00	ug/L		-0.01
5) pentafluorobenzene	10.651	168	371951	50.00	ug/L		0.00
51) 1,4-difluorobenzene	11.594	114	545735	50.00	ug/L		0.00
74) chlorobenzene-d5	14.583	117	464866	50.00	ug/L		0.00
97) 1,4-dichlorobenzene-d4	16.759	152	267808	50.00	ug/L		0.00
System Monitoring Compounds							
44) dibromofluoromethane (s)	10.677	113	168398	49.53	ug/L		0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 99.06%				
52) 1,2-dichloroethane-d4 (s)	11.112	65	174711	43.40	ug/L		0.00
Spiked Amount 50.000	Range 81 - 124		Recovery = 86.80%				
75) toluene-d8 (s)	13.162	98	573058	51.99	ug/L		0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 103.98%				
98) 4-bromofluorobenzene (s)	15.668	95	218108	50.00	ug/L		0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 100.00%				
Target Compounds							Qvalue
3) tertiary butyl alcohol	8.317	59	197466	270.49	ug/L		80
4) 1,4-dioxane	12.223	88	85208	1373.32	ug/L		93
6) chlorodifluoromethane	4.364	51	324085	43.78	ug/L		98
7) dichlorodifluoromethane	4.343	85	313413	41.76	ug/L		99
8) chloromethane	4.778	50	361690	43.41	ug/L		99
9) vinyl chloride	5.046	62	360659	48.73	ug/L		99
10) 1,3-butadiene	5.098	54	272715	52.15	ug/L		98
11) bromomethane	5.764	94	241998	48.73	ug/L		99
12) chloroethane	5.953	64	176632	49.24	ug/L		97
13) trichlorofluoromethane	6.488	101	357134	48.30	ug/L		98
14) vinyl bromide	6.346	106	209337	56.65	ug/L		98
15) ethyl ether	6.918	74	113150	49.00	ug/L		93
16) 2-chloropropane	7.180	43	356721	42.72	ug/L		97
17) acrolein	7.174	56	54815	48.11	ug/L		90
18) freon 113	7.421	151	187299	48.85	ug/L		98
19) 1,1-dichloroethene	7.421	96	210592	50.39	ug/L		90
20) acetone	7.395	58	107499	178.18	ug/L		96
21) iodomethane	7.704	142	342394	53.46	ug/L		97
23) carbon disulfide	7.872	76	611697	52.14	ug/L		96
24) methylene chloride	8.228	84	233153	48.35	ug/L		91
25) methyl acetate	7.929	43	212786	40.28	ug/L		95
26) methyl tert butyl ether	8.621	73	603860	47.53	ug/L		96
27) trans-1,2-dichloroethene	8.648	96	200412	49.74	ug/L		93
28) hexane	9.046	56	134533	45.72	ug/L		96
29) di-isopropyl ether	9.287	45	632169	44.76	ug/L		96
30) 1,1-dichloroethane	9.282	63	329354	46.84	ug/L		97
31) chloroprene	9.392	53	267135	46.38	ug/L		92
32) acrylonitrile	8.532	53	112752	45.92	ug/L		100
33) vinyl acetate	9.224	86	42010	50.40	ug/L	#	85
34) ethyl tert-butyl ether	9.791	59	618625	49.86	ug/L		97
35) 2-butanone	9.995	72	137823	186.49	ug/L		89
36) ethyl acetate	10.021	45	40423	41.46	ug/L	#	87
37) 2,2-dichloropropane	10.100	77	256373	47.90	ug/L		90
38) cis-1,2-dichloroethene	10.063	96	209066	47.74	ug/L		92
39) propionitrile	10.074	54	441775	431.00	ug/L		94
40) bromochloromethane	10.378	128	114499	50.74	ug/L		90
41) tetrahydrofuran	10.399	71	36933	44.22	ug/L		95
42) chloroform	10.478	83	325949	44.52	ug/L		98
43) t-butyl formate	10.514	59	169472	53.25	ug/L		98

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172052.d
Acq On : 27 Nov 2019 9:48 pm
Operator : EddieH
Sample : bs Inst : Instrument #1
Misc : MS39367,V2C7731,5,,,,1
ALS Vial : 25 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:17:07 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
45) methacrylonitrile	10.284	67	102615	48.89	ug/L		93
46) 1,1,1-trichloroethane	10.750	97	305429	49.35	ug/L		97
47) cyclohexane	10.866	84	288421	48.38	ug/L		95
48) 1,1-dichloropropene	10.923	75	233808	47.07	ug/L		98
49) carbon tetrachloride	10.955	117	256006	51.37	ug/L		97
53) n-butyl alcohol	11.657	56	555296	2302.75	ug/L		94
54) tert-amyl alcohol	11.070	55	79341	231.22	ug/L	#	90
55) iso-octane	11.285	57	667922	54.34	ug/L		96
56) benzene	11.175	78	712746	49.60	ug/L		100
57) tert-amyl methyl ether	11.269	87	133245	52.22	ug/L		95
58) heptane	11.442	57	128899	49.09	ug/L		96
59) isopropyl acetate	11.096	87	50837	50.51	ug/L	#	70
60) 1,2-dichloroethane	11.201	62	232184	43.01	ug/L		99
61) ethyl acrylate	11.888	55	287883	46.95	ug/L		96
62) trichloroethene	11.898	95	184198	49.67	ug/L		95
63) 2-nitropropane	12.622	41	50953	40.30	ug/L		97
64) 2-chloroethyl vinyl ether	12.659	63	601169	264.94	ug/L		98
65) methyl methacrylate	12.145	100	60604	51.87	ug/L	#	79
66) 1,2-dichloropropane	12.176	63	177542	46.63	ug/L		99
67) dibromomethane	12.281	93	127124	48.63	ug/L		92
68) methylcyclohexane	12.192	83	330173	52.42	ug/L		96
69) bromodichloromethane	12.433	83	251105	50.19	ug/L		100
70) epichlorohydrin	12.737	57	151346	225.30	ug/L		98
71) cis-1,3-dichloropropene	12.868	75	297127	50.66	ug/L		90
72) 4-methyl-2-pentanone	12.963	58	393372	180.01	ug/L		92
73) 3-methyl-1-butanol	12.968	55	329902	838.95	ug/L		96
76) toluene	13.230	92	420778	52.24	ug/L		97
77) ethyl methacrylate	13.398	69	235078	51.60	ug/L		90
78) trans-1,3-dichloropropene	13.403	75	257059	51.75	ug/L		96
79) 1,1,2-trichloroethane	13.613	83	146136	49.80	ug/L		96
80) 2-hexanone	13.765	58	366774	181.94	ug/L		90
81) tetrachloroethene	13.760	164	170205	53.00	ug/L		96
82) 1,3-dichloropropane	13.786	76	247383	46.95	ug/L		87
83) butyl acetate	13.838	56	133756	45.60	ug/L		96
84) dibromochloromethane	14.017	129	208877	55.08	ug/L		99
85) 1,2-dibromoethane	14.163	107	224279	51.68	ug/L		97
86) n-butyl ether	14.572	57	647217	50.28	ug/L		97
87) chlorobenzene	14.614	112	468117	52.98	ug/L		96
88) 1,1,1,2-tetrachloroethane	14.672	131	184821	54.30	ug/L		99
89) ethylbenzene	14.667	91	728642	50.83	ug/L		99
90) m,p-xylene	14.782	106	583832	103.25	ug/L		96
91) o-xylene	15.154	106	311976	52.53	ug/L		99
92) styrene	15.165	104	497811	52.86	ug/L		93
93) butyl acrylate	14.992	55	370204	50.08	ug/L		98
94) bromoform	15.380	173	170265	57.36	ug/L		98
95) isopropylbenzene	15.479	105	815888	53.02	ug/L		98
96) cis-1,4-dichloro-2-butene	15.511	75	84412	44.93	ug/L		93
99) bromobenzene	15.841	156	237254	51.59	ug/L		94
100) 1,1,2,2-tetrachloroethane	15.736	83	286883	52.29	ug/L		99
101) trans-1,4-dichloro-2-b...	15.768	88	32667	44.76	ug/L		90
102) 1,2,3-trichloropropane	15.820	110	72213	47.89	ug/L		94
103) n-propylbenzene	15.867	91	853671	50.80	ug/L		98
104) 2-chlorotoluene	15.993	126	208494	52.72	ug/L		94
105) 4-chlorotoluene	16.098	91	543407	50.27	ug/L		97
106) 1,3,5-trimethylbenzene	16.014	105	654171	52.55	ug/L		99
107) tert-butylbenzene	16.329	119	618619	56.24	ug/L		98
108) 1,2,4-trimethylbenzene	16.376	105	670180	52.90	ug/L		99

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172052.d
Acq On : 27 Nov 2019 9:48 pm
Operator : EddieH
Sample : bs Inst : Instrument #1
Misc : MS39367,V2C7731,5,,,,1
ALS Vial : 25 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:17:07 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

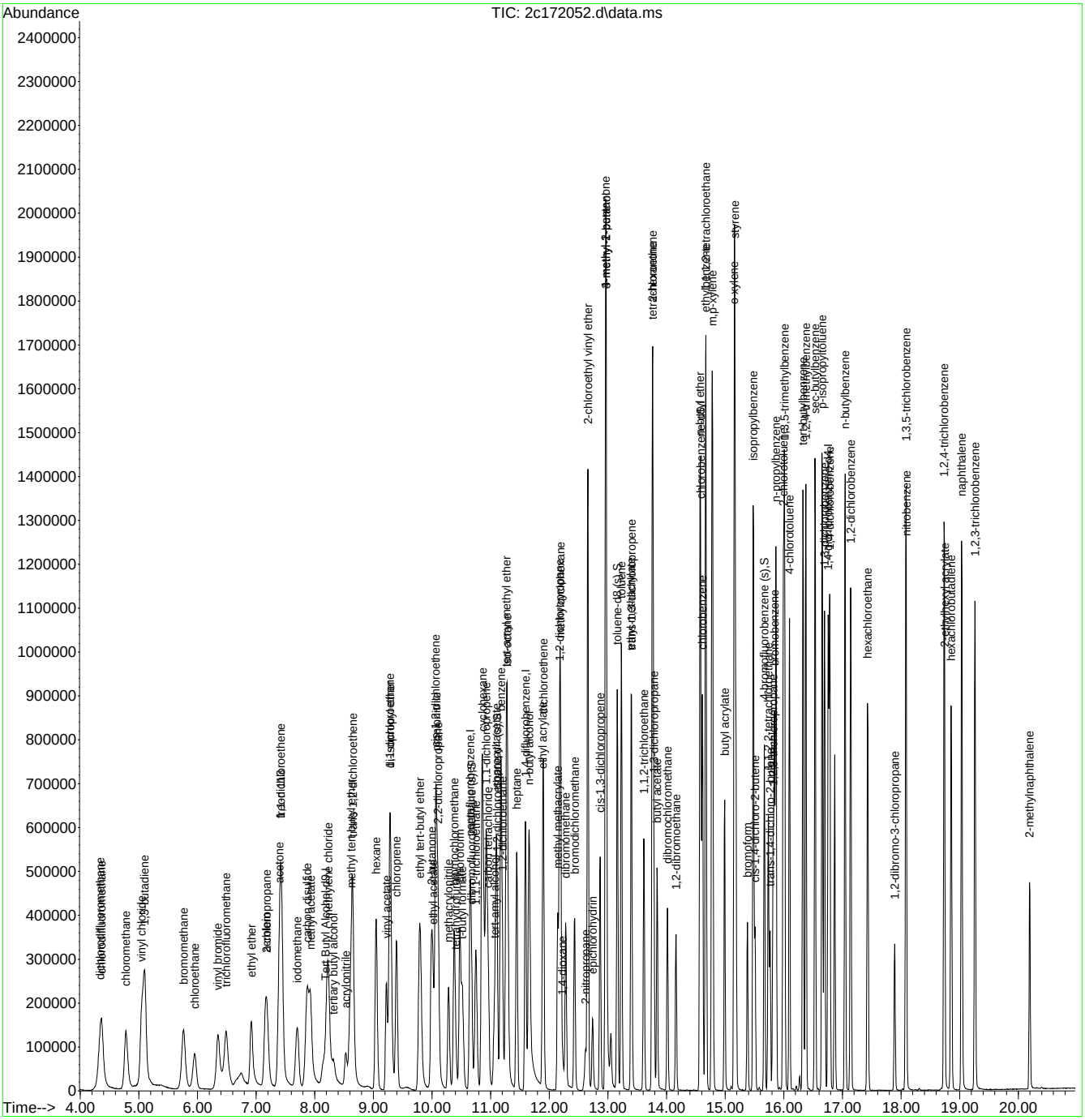
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
109) sec-butylbenzene	16.533	105	909245	54.46	ug/L	99
110) 1,3-dichlorobenzene	16.696	146	439545	51.05	ug/L	99
111) p-isopropyltoluene	16.654	119	776975	55.77	ug/L	99
112) 1,4-dichlorobenzene	16.785	146	440200	52.65	ug/L	98
113) 1,2-dichlorobenzene	17.141	146	472302	52.37	ug/L	99
114) n-butylbenzene	17.047	92	389976	55.36	ug/L	99
115) 1,2-dibromo-3-chloropr...	17.891	75	67634	48.42	ug/L	83
116) 1,3,5-trichlorobenzene	18.085	180	454895	56.45	ug/L	97
117) nitrobenzene	18.090	77	15561	53.18	ug/L	81
118) 1,2,4-trichlorobenzene	18.735	180	420756	62.13	ug/L	99
119) 2-ethylhexyl acrylate	18.746	55	40794	9.52	ug/L	95
120) hexachlorobutadiene	18.856	225	206400	52.79	ug/L	99
121) naphthalene	19.034	128	988529	59.30	ug/L	100
122) 1,2,3-trichlorobenzene	19.260	180	379191	59.49	ug/L	99
123) hexachloroethane	17.430	201	165833	64.70	ug/L	96
124) 2-methylnaphthalene	20.193	142	232276	24.63	ug/L	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172052.d
Acq On : 27 Nov 2019 9:48 pm
Operator : EddieH
Sample : bs Inst : Instrument #1
Misc : MS39367,V2C7731,5,,,,1
ALS Vial : 25 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:17:07 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172053.d
Acq On : 27 Nov 2019 10:17 pm
Operator : EddieH
Sample : bsd Inst : Instrument #1
Misc : MS39367,V2C7731,5,,,,1
ALS Vial : 26 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:17:41 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	8.181	65	337927	500.00	ug/L	-0.02
5) pentafluorobenzene	10.651	168	350736	50.00	ug/L	0.00
51) 1,4-difluorobenzene	11.594	114	521367	50.00	ug/L	0.00
74) chlorobenzene-d5	14.583	117	453706	50.00	ug/L	0.00
97) 1,4-dichlorobenzene-d4	16.759	152	262922	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.677	113	160244	49.98	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 99.96%			
52) 1,2-dichloroethane-d4 (s)	11.107	65	168544	43.83	ug/L	0.00
Spiked Amount 50.000	Range 81 - 124		Recovery = 87.66%			
75) toluene-d8 (s)	13.162	98	553541	51.46	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 102.92%			
98) 4-bromofluorobenzene (s)	15.668	95	212372	49.59	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 99.18%			
Target Compounds						Qvalue
3) tertiary butyl alcohol	8.307	59	195188	261.01	ug/L	86
4) 1,4-dioxane	12.224	88	86553	1361.83	ug/L	90
6) chlorodifluoromethane	4.364	51	325441	46.62	ug/L	99
7) dichlorodifluoromethane	4.328	85	312306	44.13	ug/L	97
8) chloromethane	4.778	50	361149	45.96	ug/L	97
9) vinyl chloride	5.046	62	362445	51.94	ug/L	99
10) 1,3-butadiene	5.093	54	268288	54.41	ug/L	99
11) bromomethane	5.754	94	243650	52.03	ug/L	98
12) chloroethane	5.948	64	175465	51.87	ug/L	96
13) trichlorofluoromethane	6.482	101	351829	50.46	ug/L	97
14) vinyl bromide	6.346	106	209755	60.20	ug/L	99
15) ethyl ether	6.918	74	107256	49.25	ug/L	90
16) 2-chloropropane	7.169	43	347299	44.11	ug/L	96
17) acrolein	7.169	56	55207	51.38	ug/L	91
18) freon 113	7.426	151	184406	51.00	ug/L	98
19) 1,1-dichloroethene	7.426	96	206911	52.50	ug/L	88
20) acetone	7.395	58	109486	192.45	ug/L	91
21) iodomethane	7.699	142	336935	55.79	ug/L	95
23) carbon disulfide	7.867	76	605080	54.69	ug/L	96
24) methylene chloride	8.218	84	228957	50.35	ug/L	88
25) methyl acetate	7.924	43	208249	41.81	ug/L	97
26) methyl tert butyl ether	8.622	73	599297	50.03	ug/L	98
27) trans-1,2-dichloroethene	8.643	96	191498	50.41	ug/L	94
28) hexane	9.046	56	126617	45.63	ug/L	96
29) di-isopropyl ether	9.287	45	616544	46.29	ug/L	95
30) 1,1-dichloroethane	9.282	63	312660	47.16	ug/L	96
31) chloroprene	9.392	53	253101	46.61	ug/L	94
32) acrylonitrile	8.532	53	112499	48.59	ug/L	97
33) vinyl acetate	9.219	86	40559	51.60	ug/L #	80
34) ethyl tert-butyl ether	9.796	59	609924	52.13	ug/L	96
35) 2-butanone	9.990	72	136311	195.60	ug/L #	86
36) ethyl acetate	10.016	45	39455	42.92	ug/L #	70
37) 2,2-dichloropropane	10.100	77	253117	50.15	ug/L	90
38) cis-1,2-dichloroethene	10.063	96	201475	48.79	ug/L	91
39) propionitrile	10.069	54	448388	463.91	ug/L	91
40) bromochloromethane	10.373	128	108690	51.08	ug/L	90
41) tetrahydrofuran	10.399	71	36429	46.26	ug/L	96
42) chloroform	10.472	83	313271	45.37	ug/L	98
43) t-butyl formate	10.514	59	168522	56.15	ug/L	99

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172053.d
Acq On : 27 Nov 2019 10:17 pm
Operator : EddieH
Sample : bsd Inst : Instrument #1
Misc : MS39367,V2C7731,5,,,,1
ALS Vial : 26 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:17:41 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
45) methacrylonitrile	10.284	67	98934	49.99	ug/L		86
46) 1,1,1-trichloroethane	10.750	97	297280	50.94	ug/L		98
47) cyclohexane	10.866	84	284688	50.64	ug/L		89
48) 1,1-dichloropropene	10.923	75	220529	47.08	ug/L		99
49) carbon tetrachloride	10.955	117	251308	53.48	ug/L		98
53) n-butyl alcohol	11.657	56	583795	2534.08	ug/L		95
54) tert-amyl alcohol	11.065	55	81107	247.42	ug/L		93
55) iso-octane	11.280	57	641454	54.62	ug/L		98
56) benzene	11.175	78	681040	49.61	ug/L		100
57) tert-amyl methyl ether	11.269	87	133556	54.78	ug/L		99
58) heptane	11.442	57	122362	48.78	ug/L		96
59) isopropyl acetate	11.096	87	49514	51.49	ug/L	#	73
60) 1,2-dichloroethane	11.201	62	220455	42.75	ug/L		99
61) ethyl acrylate	11.888	55	285161	48.68	ug/L		96
62) trichloroethene	11.899	95	176751	49.89	ug/L		96
63) 2-nitropropane	12.622	41	51033	42.25	ug/L		99
64) 2-chloroethyl vinyl ether	12.659	63	586424	270.52	ug/L		97
65) methyl methacrylate	12.145	100	60743	54.42	ug/L	#	78
66) 1,2-dichloropropane	12.176	63	172490	47.42	ug/L		99
67) dibromomethane	12.281	93	122679	49.12	ug/L		92
68) methylcyclohexane	12.192	83	322786	53.65	ug/L		96
69) bromodichloromethane	12.433	83	240609	50.34	ug/L		98
70) epichlorohydrin	12.737	57	155690	242.59	ug/L		99
71) cis-1,3-dichloropropene	12.868	75	285287	50.92	ug/L		90
72) 4-methyl-2-pentanone	12.963	58	395744	189.56	ug/L		89
73) 3-methyl-1-butanol	12.968	55	360056	958.42	ug/L		95
76) toluene	13.230	92	407877	51.88	ug/L		99
77) ethyl methacrylate	13.398	69	231515	52.07	ug/L		90
78) trans-1,3-dichloropropene	13.403	75	248653	51.29	ug/L		97
79) 1,1,2-trichloroethane	13.613	83	142959	49.92	ug/L		99
80) 2-hexanone	13.765	58	371442	188.79	ug/L		91
81) tetrachloroethene	13.755	164	162293	51.78	ug/L		98
82) 1,3-dichloropropane	13.786	76	240712	46.81	ug/L		88
83) butyl acetate	13.838	56	134228	46.88	ug/L		95
84) dibromochloromethane	14.017	129	202243	54.64	ug/L		97
85) 1,2-dibromoethane	14.158	107	220034	51.95	ug/L		98
86) n-butyl ether	14.572	57	637007	50.70	ug/L		97
87) chlorobenzene	14.614	112	455757	52.85	ug/L		96
88) 1,1,1,2-tetrachloroethane	14.672	131	181198	54.55	ug/L		98
89) ethylbenzene	14.667	91	709604	50.72	ug/L		98
90) m,p-xylene	14.782	106	572001	103.65	ug/L		97
91) o-xylene	15.154	106	307183	53.00	ug/L		99
92) styrene	15.165	104	485254	52.80	ug/L		94
93) butyl acrylate	14.992	55	367499	50.94	ug/L		97
94) bromoform	15.380	173	167046	57.66	ug/L		99
95) isopropylbenzene	15.480	105	804495	53.57	ug/L		98
96) cis-1,4-dichloro-2-butene	15.511	75	84254	45.95	ug/L		94
99) bromobenzene	15.841	156	234774	52.00	ug/L		94
100) 1,1,2,2-tetrachloroethane	15.736	83	285512	53.00	ug/L		100
101) trans-1,4-dichloro-2-b...	15.768	88	32447	45.28	ug/L		90
102) 1,2,3-trichloropropane	15.820	110	71063	48.00	ug/L		93
103) n-propylbenzene	15.867	91	840146	50.92	ug/L		98
104) 2-chlorotoluene	15.993	126	207326	53.40	ug/L		90
105) 4-chlorotoluene	16.098	91	529268	49.87	ug/L		96
106) 1,3,5-trimethylbenzene	16.014	105	648705	53.08	ug/L		99
107) tert-butylbenzene	16.329	119	606587	56.17	ug/L		97
108) 1,2,4-trimethylbenzene	16.376	105	659874	53.06	ug/L		99

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172053.d
Acq On : 27 Nov 2019 10:17 pm
Operator : EddieH
Sample : bsd Inst : Instrument #1
Misc : MS39367,V2C7731,5,,,,1
ALS Vial : 26 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:17:41 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

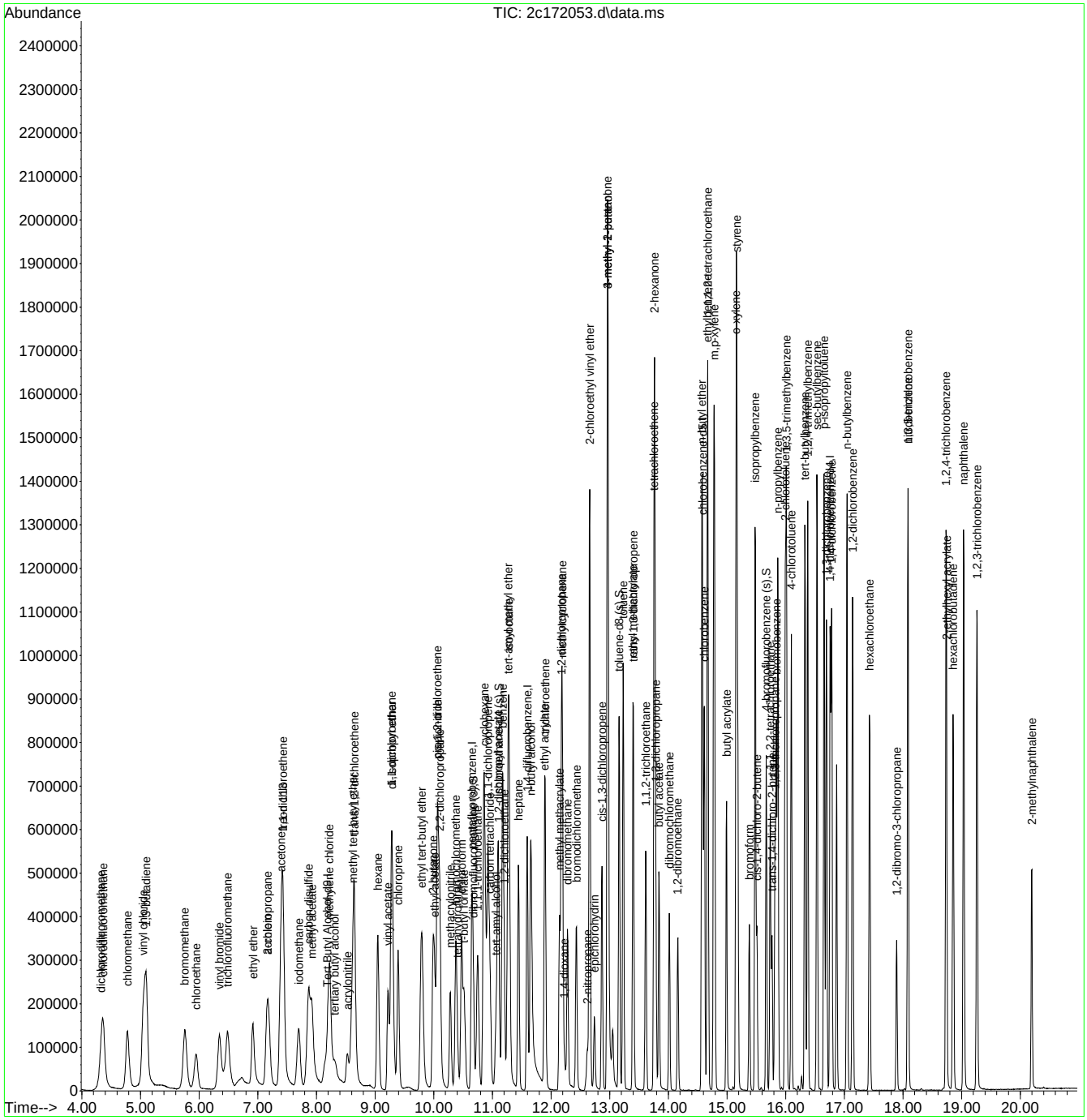
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
109) sec-butylbenzene	16.533	105	906017	55.28	ug/L	98
110) 1,3-dichlorobenzene	16.696	146	431077	51.00	ug/L	99
111) p-isopropyltoluene	16.654	119	769063	56.23	ug/L	99
112) 1,4-dichlorobenzene	16.785	146	431048	52.51	ug/L	100
113) 1,2-dichlorobenzene	17.142	146	467230	52.77	ug/L	100
114) n-butylbenzene	17.047	92	386043	55.82	ug/L	99
115) 1,2-dibromo-3-chloropr...	17.891	75	70251	51.23	ug/L	90
116) 1,3,5-trichlorobenzene	18.085	180	455011	57.51	ug/L	97
117) nitrobenzene	18.085	77	17331	59.92	ug/L	84
118) 1,2,4-trichlorobenzene	18.735	180	424935	63.91	ug/L	99
119) 2-ethylhexyl acrylate	18.746	55	43956	10.33	ug/L	98
120) hexachlorobutadiene	18.856	225	205905	53.64	ug/L	98
121) naphthalene	19.034	128	1019299	62.28	ug/L	99
122) 1,2,3-trichlorobenzene	19.265	180	384696	61.48	ug/L	98
123) hexachloroethane	17.430	201	162353	64.52	ug/L	95
124) 2-methylnaphthalene	20.198	142	247211	26.54	ug/L	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172053.d
Acq On : 27 Nov 2019 10:17 pm
Operator : EddieH
Sample : bsd Inst : Instrument #1
Misc : MS39367,V2C7731,5,,,,1
ALS Vial : 26 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:17:41 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172057.d
Acq On : 28 Nov 2019 12:11 am
Operator : EddieH
Sample : JC99215-4ms Inst : Instrument #1
Misc : MS39494,V2C7731,5,,,,5
ALS Vial : 30 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:21:45 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	8.192	65	325707	500.00	ug/L	0.00
5) pentafluorobenzene	10.651	168	353263	50.00	ug/L	0.00
51) 1,4-difluorobenzene	11.594	114	523183	50.00	ug/L	0.00
74) chlorobenzene-d5	14.583	117	455415	50.00	ug/L	0.00
97) 1,4-dichlorobenzene-d4	16.759	152	259259	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.677	113	162387	50.29	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 100.58%			
52) 1,2-dichloroethane-d4 (s)	11.107	65	169710	43.98	ug/L	0.00
Spiked Amount 50.000	Range 81 - 124		Recovery = 87.96%			
75) toluene-d8 (s)	13.162	98	557140	51.60	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 103.20%			
98) 4-bromofluorobenzene (s)	15.668	95	210692	49.89	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 99.78%			
Target Compounds						Qvalue
3) tertiary butyl alcohol	8.312	59	186578	258.86	ug/L	83
4) 1,4-dioxane	12.224	88	75900	1239.02	ug/L	85
6) chlorodifluoromethane	4.375	51	317033	45.09	ug/L	97
7) dichlorodifluoromethane	4.333	85	317814	44.59	ug/L	99
8) chloromethane	4.784	50	351215	44.38	ug/L	98
9) vinyl chloride	5.051	62	350183	49.82	ug/L	99
10) 1,3-butadiene	5.104	54	254460	51.24	ug/L	99
11) bromomethane	5.759	94	229901	48.75	ug/L	99
12) chloroethane	5.953	64	165142	48.47	ug/L	96
13) trichlorofluoromethane	6.488	101	335388	47.75	ug/L	100
14) vinyl bromide	6.351	106	196798	56.08	ug/L	96
15) ethyl ether	6.918	74	105016	47.88	ug/L	94
16) 2-chloropropane	7.169	43	334225	42.14	ug/L	97
17) acrolein	7.180	56	51049	47.17	ug/L	98
18) freon 113	7.426	151	180148	49.47	ug/L	97
19) 1,1-dichloroethene	7.426	96	202240	50.95	ug/L	89
20) acetone	7.410	58	101448	177.05	ug/L	95
21) iodomethane	7.704	142	323748	53.23	ug/L	94
23) carbon disulfide	7.872	76	573495	51.47	ug/L	97
24) methylene chloride	8.223	84	219733	47.98	ug/L	92
25) methyl acetate	7.930	43	196305	39.13	ug/L	99
26) methyl tert butyl ether	8.622	73	577246	47.84	ug/L	97
27) trans-1,2-dichloroethene	8.648	96	185647	48.52	ug/L	95
28) hexane	9.052	56	125576	44.94	ug/L	96
29) di-isopropyl ether	9.293	45	591684	44.11	ug/L	96
30) 1,1-dichloroethane	9.282	63	318367	47.67	ug/L	98
31) chloroprene	9.392	53	242569	44.35	ug/L	93
32) acrylonitrile	8.527	53	104898	44.99	ug/L	98
33) vinyl acetate	9.225	86	38609	48.77	ug/L #	79
34) ethyl tert-butyl ether	9.791	59	603228	51.19	ug/L	95
35) 2-butanone	9.990	72	126567	180.32	ug/L #	86
36) ethyl acetate	10.016	45	36841	39.79	ug/L #	80
37) 2,2-dichloropropane	10.100	77	246467	48.49	ug/L	91
38) cis-1,2-dichloroethene	10.063	96	258230	62.08	ug/L	91
39) propionitrile	10.069	54	409675	420.82	ug/L	92
40) bromochloromethane	10.378	128	105672	49.31	ug/L	91
41) tetrahydrofuran	10.399	71	34233	43.16	ug/L	96
42) chloroform	10.478	83	301503	43.36	ug/L	98
43) t-butyl formate	10.520	59	126618	41.89	ug/L	99

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172057.d
Acq On : 28 Nov 2019 12:11 am
Operator : EddieH
Sample : JC99215-4ms Inst : Instrument #1
Misc : MS39494,V2C7731,5,,,,5
ALS Vial : 30 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:21:45 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
45) methacrylonitrile	10.284	67	93237	46.77	ug/L		89
46) 1,1,1-trichloroethane	10.750	97	284515	48.40	ug/L		97
47) cyclohexane	10.871	84	266116	47.00	ug/L	#	75
48) 1,1-dichloropropene	10.923	75	209826	44.48	ug/L		97
49) carbon tetrachloride	10.955	117	238789	50.45	ug/L		97
53) n-butyl alcohol	11.657	56	502815	2174.99	ug/L		92
54) tert-amyl alcohol	11.070	55	74958	227.87	ug/L		92
55) iso-octane	11.280	57	617791	52.42	ug/L		97
56) benzene	11.175	78	654213	47.49	ug/L		100
57) tert-amyl methyl ether	11.269	87	127317	52.04	ug/L		94
58) heptane	11.442	57	120161	47.74	ug/L		98
59) isopropyl acetate	11.096	87	46619	48.31	ug/L	#	73
60) 1,2-dichloroethane	11.201	62	213114	41.18	ug/L		99
61) ethyl acrylate	11.888	55	263133	44.76	ug/L		95
62) trichloroethene	11.899	95	236645	66.56	ug/L		95
63) 2-nitropropane	12.622	41	44995	37.12	ug/L		98
65) methyl methacrylate	12.145	100	55188	49.27	ug/L	#	78
66) 1,2-dichloropropane	12.176	63	162341	44.48	ug/L		97
67) dibromomethane	12.281	93	116856	46.62	ug/L		92
68) methylcyclohexane	12.192	83	310763	51.47	ug/L		95
69) bromodichloromethane	12.433	83	227976	47.53	ug/L		98
70) epichlorohydrin	12.737	57	144202	223.91	ug/L		98
71) cis-1,3-dichloropropene	12.868	75	276877	49.25	ug/L		91
72) 4-methyl-2-pentanone	12.963	58	368346	175.82	ug/L		92
73) 3-methyl-1-butanol	12.968	55	303237	804.38	ug/L		95
76) toluene	13.230	92	388872	49.28	ug/L		97
77) ethyl methacrylate	13.398	69	215511	48.28	ug/L		90
78) trans-1,3-dichloropropene	13.403	75	238212	48.95	ug/L		96
79) 1,1,2-trichloroethane	13.613	83	133930	46.59	ug/L		98
80) 2-hexanone	13.765	58	312168	158.07	ug/L		90
81) tetrachloroethene	13.755	164	606876	192.91	ug/L		98
82) 1,3-dichloropropane	13.786	76	218911	42.41	ug/L		86
83) butyl acetate	13.838	56	124597	43.36	ug/L		93
84) dibromochloromethane	14.017	129	191719	51.61	ug/L		99
85) 1,2-dibromoethane	14.158	107	206444	48.56	ug/L		100
86) n-butyl ether	14.572	57	596452	47.30	ug/L		98
87) chlorobenzene	14.614	112	431800	49.88	ug/L		96
88) 1,1,1,2-tetrachloroethane	14.672	131	173147	51.93	ug/L		99
89) ethylbenzene	14.667	91	672632	47.89	ug/L		99
90) m,p-xylene	14.782	106	541457	97.74	ug/L		96
91) o-xylene	15.154	106	288762	49.63	ug/L		99
92) styrene	15.165	104	458882	49.74	ug/L		93
93) butyl acrylate	14.992	55	340814	47.06	ug/L		98
94) bromoform	15.380	173	156468	53.81	ug/L		97
95) isopropylbenzene	15.480	105	758973	50.35	ug/L		98
96) cis-1,4-dichloro-2-butene	15.511	75	79134	43.00	ug/L		94
99) bromobenzene	15.841	156	220650	49.57	ug/L		92
100) 1,1,2,2-tetrachloroethane	15.736	83	264487	49.79	ug/L		98
101) trans-1,4-dichloro-2-b...	15.768	88	30866	43.68	ug/L		90
102) 1,2,3-trichloropropane	15.820	110	67253	46.07	ug/L		95
103) n-propylbenzene	15.868	91	790711	48.60	ug/L		98
104) 2-chlorotoluene	15.993	126	194698	50.86	ug/L		91
105) 4-chlorotoluene	16.098	91	498450	47.63	ug/L		96
106) 1,3,5-trimethylbenzene	16.014	105	607028	50.37	ug/L		99
107) tert-butylbenzene	16.329	119	563643	52.93	ug/L		97
108) 1,2,4-trimethylbenzene	16.376	105	619294	50.50	ug/L		99
109) sec-butylbenzene	16.533	105	841037	52.04	ug/L		99

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172057.d
Acq On : 28 Nov 2019 12:11 am
Operator : EddieH
Sample : JC99215-4ms Inst : Instrument #1
Misc : MS39494,V2C7731,5,,,,5
ALS Vial : 30 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:21:45 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

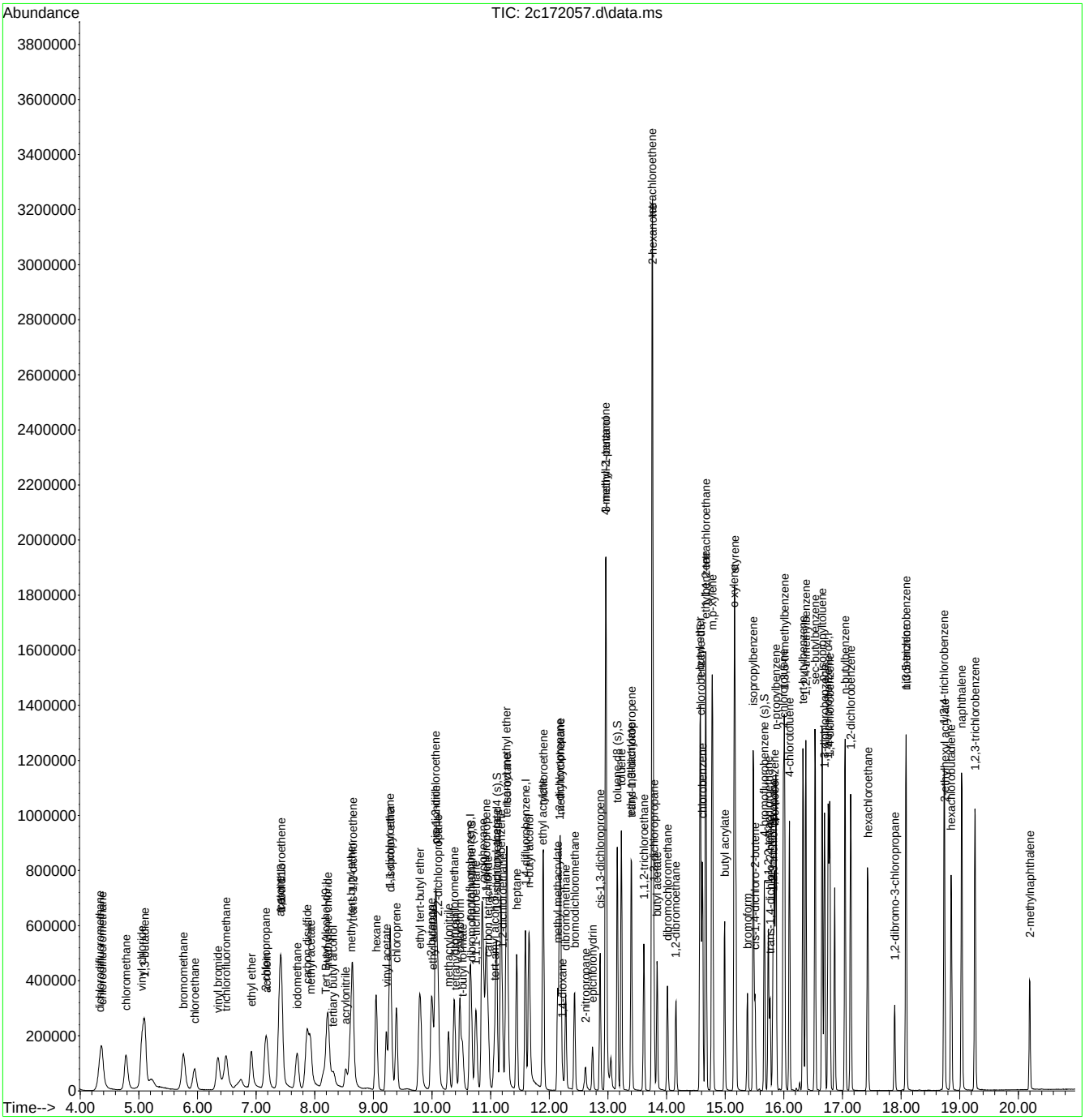
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
110) 1,3-dichlorobenzene	16.696	146	401518	48.17	ug/L	99
111) p-isopropyltoluene	16.654	119	718069	53.25	ug/L	99
112) 1,4-dichlorobenzene	16.785	146	406794	50.26	ug/L	99
113) 1,2-dichlorobenzene	17.142	146	433445	49.65	ug/L	99
114) n-butylbenzene	17.047	92	357181	52.37	ug/L	99
115) 1,2-dibromo-3-chloropr...	17.891	75	62481	46.21	ug/L	86
116) 1,3,5-trichlorobenzene	18.085	180	422091	54.11	ug/L	97
117) nitrobenzene	18.085	77	13977	49.57	ug/L	95
118) 1,2,4-trichlorobenzene	18.735	180	392258	59.83	ug/L	98
119) 2-ethylhexyl acrylate	18.746	55	34869	8.55	ug/L	96
120) hexachlorobutadiene	18.856	225	187151	49.44	ug/L	99
121) naphthalene	19.034	128	926097	57.39	ug/L	99
122) 1,2,3-trichlorobenzene	19.265	180	354797	57.50	ug/L	98
123) hexachloroethane	17.435	201	148321	59.77	ug/L	94
124) 2-methylnaphthalene	20.198	142	193952	21.52	ug/L	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172057.d
Acq On : 28 Nov 2019 12:11 am
Operator : EddieH
Sample : JC99215-4ms Inst : Instrument #1
Misc : MS39494,V2C7731,5,,,,5
ALS Vial : 30 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:21:45 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172058.d
Acq On : 28 Nov 2019 12:40 am
Operator : EddieH
Sample : JC99215-4msd Inst : Instrument #1
Misc : MS39494,V2C7731,5,,,,5
ALS Vial : 31 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:22:14 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	8.186	65	341001	500.00	ug/L	-0.01
5) pentafluorobenzene	10.651	168	370223	50.00	ug/L	0.00
51) 1,4-difluorobenzene	11.594	114	551920	50.00	ug/L	0.00
74) chlorobenzene-d5	14.583	117	468061	50.00	ug/L	0.00
97) 1,4-dichlorobenzene-d4	16.759	152	266324	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.677	113	167370	49.46	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 98.92%			
52) 1,2-dichloroethane-d4 (s)	11.107	65	174934	42.97	ug/L	0.00
Spiked Amount 50.000	Range 81 - 124		Recovery = 85.94%			
75) toluene-d8 (s)	13.162	98	575325	51.84	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 103.68%			
98) 4-bromofluorobenzene (s)	15.668	95	219601	50.62	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 101.24%			
Target Compounds						Qvalue
3) tertiary butyl alcohol	8.312	59	196646	260.59	ug/L	84
4) 1,4-dioxane	12.223	88	81805	1275.52	ug/L	88
6) chlorodifluoromethane	4.369	51	300246	40.75	ug/L	99
7) dichlorodifluoromethane	4.338	85	297899	39.88	ug/L	98
8) chloromethane	4.784	50	335937	40.50	ug/L	98
9) vinyl chloride	5.051	62	336554	45.69	ug/L	99
10) 1,3-butadiene	5.103	54	246446	47.35	ug/L	99
11) bromomethane	5.764	94	220049	44.52	ug/L	99
12) chloroethane	5.953	64	161692	45.28	ug/L	98
13) trichlorofluoromethane	6.488	101	324727	44.12	ug/L	98
14) vinyl bromide	6.351	106	192210	52.26	ug/L	98
15) ethyl ether	6.918	74	106143	46.18	ug/L	93
16) 2-chloropropane	7.169	43	332791	40.04	ug/L	95
17) acrolein	7.180	56	53481	47.16	ug/L	93
18) freon 113	7.421	151	171575	44.96	ug/L	98
19) 1,1-dichloroethene	7.426	96	196587	47.26	ug/L	92
20) acetone	7.405	58	103332	172.08	ug/L	94
21) iodomethane	7.704	142	318807	50.01	ug/L	97
23) carbon disulfide	7.872	76	555095	47.53	ug/L	96
24) methylene chloride	8.228	84	217573	45.33	ug/L	92
25) methyl acetate	7.929	43	203831	38.77	ug/L	97
26) methyl tert butyl ether	8.621	73	576709	45.61	ug/L	97
27) trans-1,2-dichloroethene	8.648	96	184757	46.07	ug/L	94
28) hexane	9.046	56	126278	43.12	ug/L	97
29) di-isopropyl ether	9.293	45	594706	42.30	ug/L	94
30) 1,1-dichloroethane	9.282	63	321322	45.91	ug/L	99
31) chloroprene	9.392	53	243454	42.47	ug/L	93
32) acrylonitrile	8.532	53	109232	44.70	ug/L	97
33) vinyl acetate	9.224	86	40295	48.57	ug/L #	77
34) ethyl tert-butyl ether	9.796	59	586163	47.46	ug/L	96
35) 2-butanone	9.990	72	133146	181.00	ug/L #	84
36) ethyl acetate	10.016	45	39495	40.70	ug/L #	84
37) 2,2-dichloropropane	10.095	77	241504	45.33	ug/L	89
38) cis-1,2-dichloroethene	10.063	96	258568	59.31	ug/L	91
39) propionitrile	10.069	54	425498	417.05	ug/L	88
40) bromochloromethane	10.378	128	107398	47.82	ug/L	91
41) tetrahydrofuran	10.399	71	35527	42.74	ug/L	96
42) chloroform	10.472	83	303977	41.71	ug/L	98
43) t-butyl formate	10.514	59	123355	38.94	ug/L	98

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172058.d
Acq On : 28 Nov 2019 12:40 am
Operator : EddieH
Sample : JC99215-4msd Inst : Instrument #1
Misc : MS39494,V2C7731,5,,,,5
ALS Vial : 31 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:22:14 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
45) methacrylonitrile	10.284	67	96523	46.20	ug/L		92
46) 1,1,1-trichloroethane	10.750	97	281345	45.67	ug/L		96
47) cyclohexane	10.866	84	263775	44.45	ug/L		95
48) 1,1-dichloropropene	10.923	75	213215	43.12	ug/L		98
49) carbon tetrachloride	10.955	117	237310	47.84	ug/L		99
53) n-butyl alcohol	11.657	56	547943	2246.79	ug/L		92
54) tert-amyl alcohol	11.065	55	76971	221.80	ug/L		95
55) iso-octane	11.280	57	607173	48.84	ug/L		97
56) benzene	11.175	78	659566	45.39	ug/L		99
57) tert-amyl methyl ether	11.269	87	126313	48.94	ug/L		93
58) heptane	11.442	57	120607	45.42	ug/L		96
59) isopropyl acetate	11.096	87	47543	46.71	ug/L	#	72
60) 1,2-dichloroethane	11.201	62	221244	40.53	ug/L		99
61) ethyl acrylate	11.888	55	275845	44.48	ug/L		94
62) trichloroethene	11.898	95	239968	63.98	ug/L		95
63) 2-nitropropane	12.622	41	48442	37.88	ug/L		97
65) methyl methacrylate	12.145	100	58012	49.09	ug/L	#	79
66) 1,2-dichloropropane	12.176	63	167475	43.50	ug/L		99
67) dibromomethane	12.281	93	121499	45.95	ug/L		92
68) methylcyclohexane	12.192	83	306425	48.11	ug/L		95
69) bromodichloromethane	12.433	83	235312	46.51	ug/L		100
70) epichlorohydrin	12.737	57	147512	217.13	ug/L		99
71) cis-1,3-dichloropropene	12.868	75	285499	48.14	ug/L		90
72) 4-methyl-2-pentanone	12.963	58	381177	172.47	ug/L		92
73) 3-methyl-1-butanol	12.968	55	332047	834.94	ug/L		95
76) toluene	13.230	92	389791	48.06	ug/L		96
77) ethyl methacrylate	13.398	69	223675	48.76	ug/L		90
78) trans-1,3-dichloropropene	13.403	75	246141	49.22	ug/L		96
79) 1,1,2-trichloroethane	13.613	83	138659	46.93	ug/L		98
80) 2-hexanone	13.765	58	327914	161.55	ug/L		90
81) tetrachloroethene	13.754	164	606995	187.74	ug/L		98
82) 1,3-dichloropropane	13.786	76	223546	42.14	ug/L		89
83) butyl acetate	13.844	56	129463	43.83	ug/L		90
84) dibromochloromethane	14.017	129	195406	51.18	ug/L		97
85) 1,2-dibromoethane	14.163	107	210502	48.17	ug/L		97
86) n-butyl ether	14.572	57	606369	46.78	ug/L		98
87) chlorobenzene	14.614	112	436379	49.05	ug/L		96
88) 1,1,1,2-tetrachloroethane	14.672	131	174691	50.97	ug/L		99
89) ethylbenzene	14.667	91	675595	46.80	ug/L		98
90) m,p-xylene	14.782	106	544137	95.57	ug/L		98
91) o-xylene	15.154	106	292601	48.93	ug/L		99
92) styrene	15.165	104	466089	49.16	ug/L		93
93) butyl acrylate	14.992	55	354861	47.68	ug/L		98
94) bromoform	15.380	173	161017	53.87	ug/L		98
95) isopropylbenzene	15.479	105	756538	48.83	ug/L		99
96) cis-1,4-dichloro-2-butene	15.511	75	82162	43.43	ug/L		94
99) bromobenzene	15.841	156	223727	48.92	ug/L		94
100) 1,1,2,2-tetrachloroethane	15.736	83	273749	50.17	ug/L		99
101) trans-1,4-dichloro-2-b...	15.768	88	32725	45.09	ug/L		91
102) 1,2,3-trichloropropane	15.820	110	69222	46.16	ug/L		97
103) n-propylbenzene	15.867	91	795747	47.61	ug/L		98
104) 2-chlorotoluene	15.993	126	196537	49.98	ug/L		93
105) 4-chlorotoluene	16.098	91	503930	46.87	ug/L		96
106) 1,3,5-trimethylbenzene	16.014	105	611299	49.38	ug/L		99
107) tert-butylbenzene	16.329	119	569156	52.03	ug/L		97
108) 1,2,4-trimethylbenzene	16.376	105	624404	49.56	ug/L		99
109) sec-butylbenzene	16.533	105	842571	50.75	ug/L		98

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172058.d
Acq On : 28 Nov 2019 12:40 am
Operator : EddieH
Sample : JC99215-4msd Inst : Instrument #1
Misc : MS39494,V2C7731,5,,,,5
ALS Vial : 31 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:22:14 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

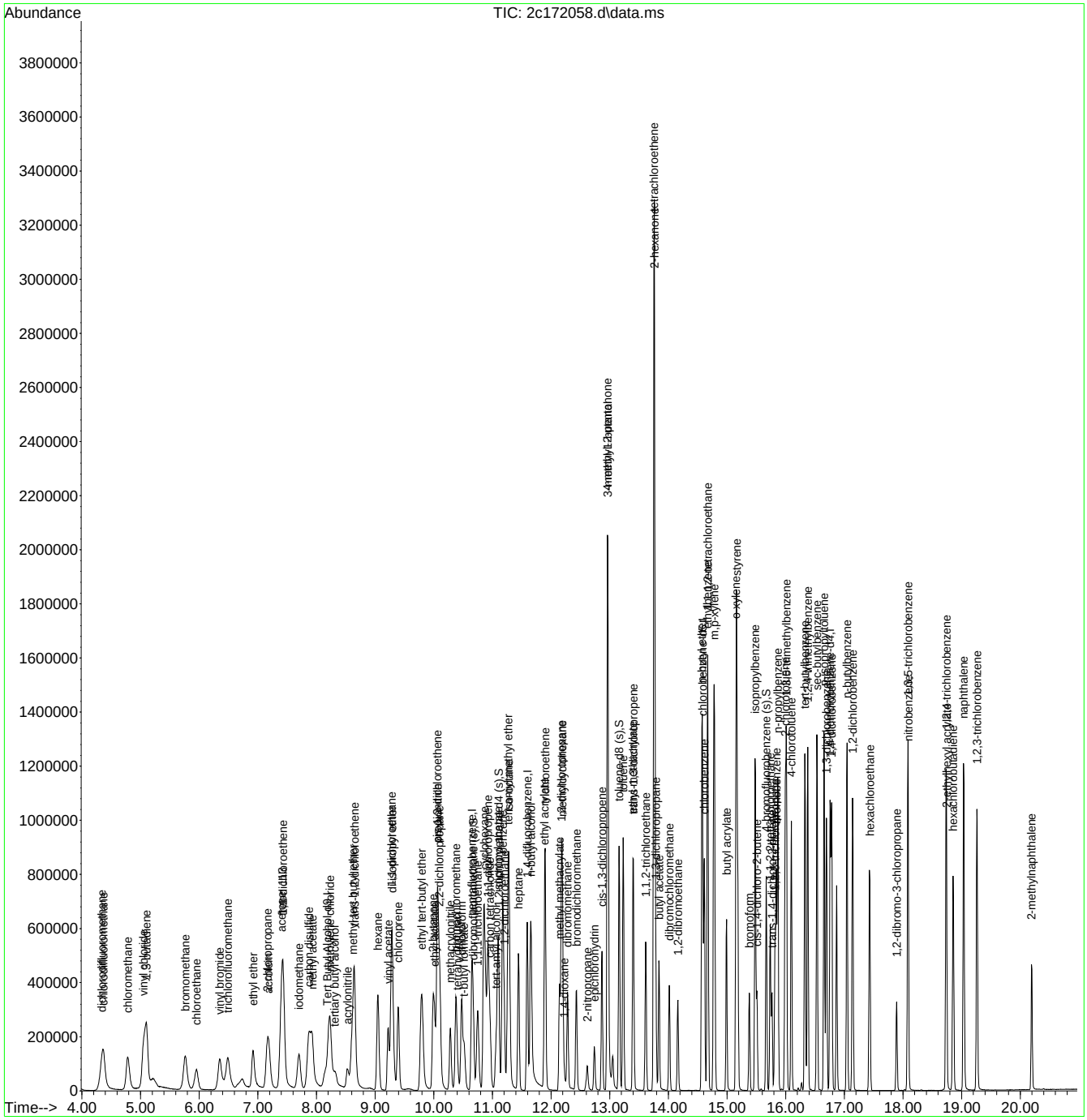
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
110) 1,3-dichlorobenzene	16.696	146	411806	48.10	ug/L	98
111) p-isopropyltoluene	16.654	119	714070	51.54	ug/L	98
112) 1,4-dichlorobenzene	16.785	146	410940	49.42	ug/L	99
113) 1,2-dichlorobenzene	17.141	146	441772	49.26	ug/L	99
114) n-butylbenzene	17.047	92	362017	51.67	ug/L	99
115) 1,2-dibromo-3-chloropr...	17.891	75	66325	47.75	ug/L	88
116) 1,3,5-trichlorobenzene	18.085	180	423714	52.87	ug/L	97
117) nitrobenzene	18.090	77	15880	54.50	ug/L	83
118) 1,2,4-trichlorobenzene	18.741	180	393338	58.40	ug/L	98
119) 2-ethylhexyl acrylate	18.746	55	38665	9.13	ug/L	97
120) hexachlorobutadiene	18.856	225	187167	48.14	ug/L	99
121) naphthalene	19.034	128	962671	58.07	ug/L	99
122) 1,2,3-trichlorobenzene	19.260	180	360083	56.81	ug/L	98
123) hexachloroethane	17.435	201	151430	59.41	ug/L	96
124) 2-methylnaphthalene	20.193	142	227219	24.26	ug/L	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172058.d
Acq On : 28 Nov 2019 12:40 am
Operator : EddieH
Sample : JC99215-4msd Inst : Instrument #1
Misc : MS39494,V2C7731,5,,,,5
ALS Vial : 31 Sample Multiplier: 1

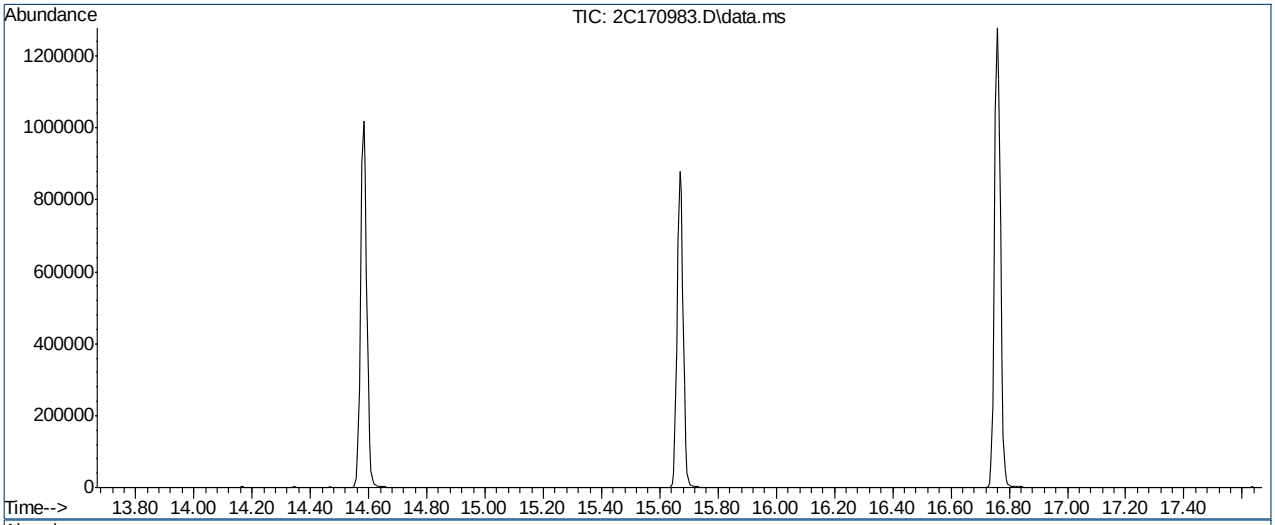
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:22:14 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration



SW-846 Method 8260

Data File : C:\msdchem\1\DATA\V2C7685\2C170983.D Vial: 4
Acq On : 30 Oct 2019 6:00 pm Operator: brittank
Sample : bfb Inst : Instrument #1
Misc : MS38525,V2C7685,5,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\M2C7685.M (RTE Integrator)
Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um



AutoFind: Scans 2228, 2229, 2230; Background Corrected with Scan 2220

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	18.8	29408	PASS
75	95	30	60	47.3	74125	PASS
95	95	100	100	100.0	156821	PASS
96	95	5	9	6.9	10857	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	95.1	149149	PASS
175	174	5	9	7.9	11836	PASS
176	174	95	101	98.2	146490	PASS
177	176	5	9	6.7	9755	PASS

2C170983.D M2C7685.M Thu Oct 31 11:40:06 2019 RPT1

Average of 15.663 to 15.673 min.: 2C170983.D\data.ms
bfb
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
36.00	1542	49.00	6594	63.00	4959	76.95	821
37.00	8303	50.00	29408	63.95	432	77.95	782
38.00	7434	51.00	9284	67.00	367	78.90	4027
39.00	2818	51.95	334	68.00	14415	79.90	1221
39.90	92	55.00	342	69.00	15049	80.90	4313
42.95	106	56.00	2183	70.00	1134	81.90	973
43.95	797	57.00	3858	71.90	978	83.00	44
45.00	1279	57.95	144	73.00	6426	85.95	226
46.00	143	59.95	1355	74.00	24346	86.95	6790
47.00	1987	61.00	6823	75.00	74125	87.95	6251
48.00	841	62.00	6736	76.00	6314	90.90	518

Average of 15.663 to 15.673 min.: 2C170983.D\data.ms
bfb
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
91.90	4103	110.80	47	129.85	544	146.90	86
93.00	6174	112.75	110	130.85	213	147.75	300
94.00	17683	114.85	143	134.90	337	148.90	73
95.00	156821	115.85	532	136.90	230	149.70	45
96.00	10857	116.85	1023	139.80	104	149.85	115
96.95	345	117.85	473	140.90	1432	152.80	139
103.85	690	118.90	695	141.90	215	153.80	103
104.90	232	123.75	89	142.85	1569	154.85	341
105.85	558	127.70	178	143.85	87	156.90	271
106.90	131	127.85	361	144.85	146	158.70	169
109.90	53	128.85	264	145.85	271	160.75	152

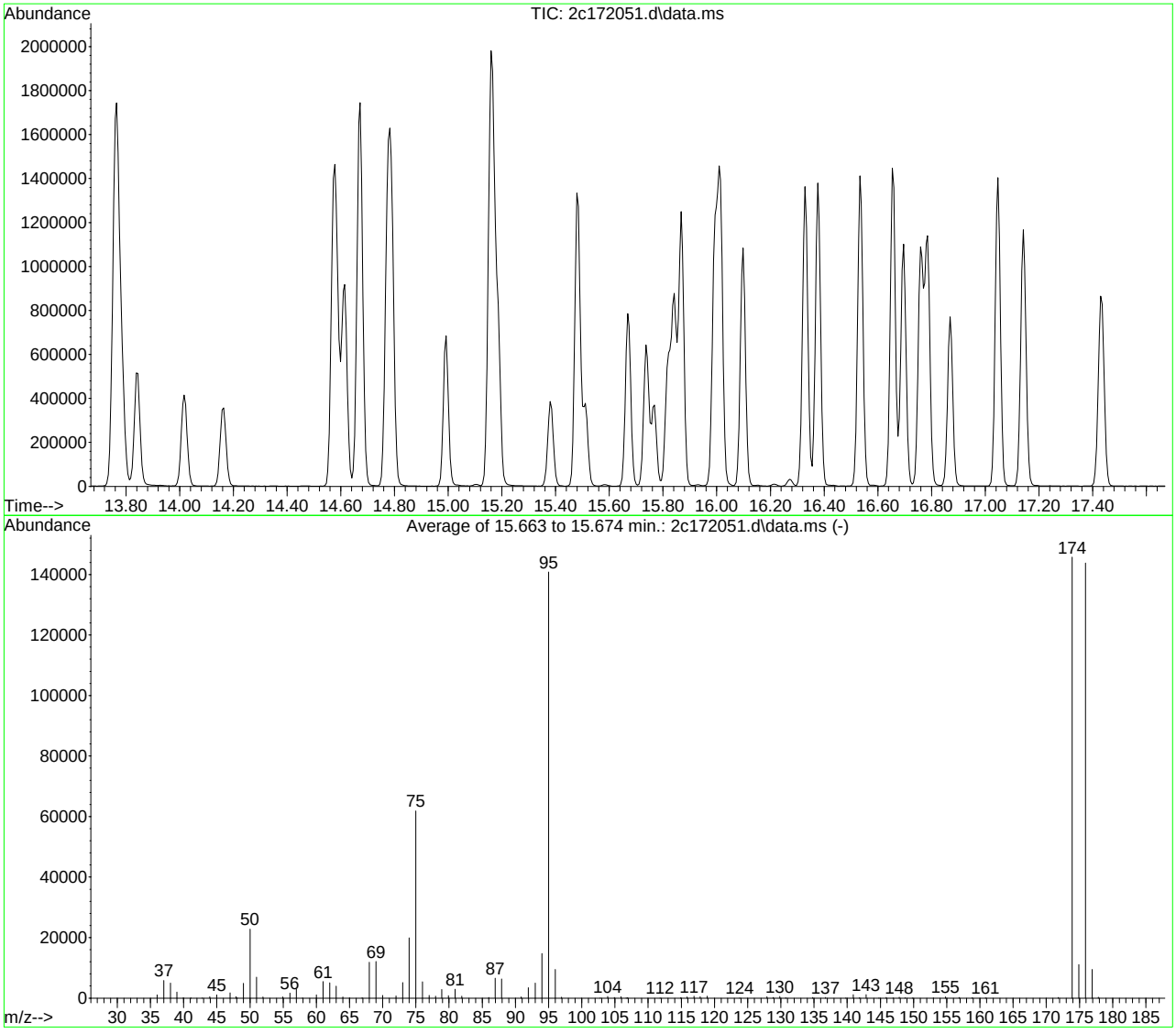
Average of 15.663 to 15.673 min.: 2C170983.D\data.ms
bfb
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
171.80	264						
173.90	149149						
174.90	11836						
175.90	146490						
176.90	9755						
177.85	253						

SW-846 Method 8260

Data File : C:\msdchem\1\data\kr...19\v2c7731\2c172051.d Vial: 24
Acq On : 27 Nov 2019 9:20 pm Operator: EddieH
Sample : bfb Inst : Instrument #1
Misc : MS39367,V2C7731,5,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\M2C7685.M (RTE Integrator)
Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um



AutoFind: Scans 2228, 2229, 2230; Background Corrected with Scan 2220

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	16.2	22803	PASS
75	95	30	60	43.9	61896	PASS
95	95	100	100	100.0	140835	PASS
96	95	5	9	6.7	9449	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	103.5	145725	PASS
175	174	5	9	7.6	11094	PASS
176	174	95	101	98.7	143789	PASS
177	176	5	9	6.6	9445	PASS

2c172051.d M2C7685.M Mon Dec 02 12:15:26 2019

Average of 15.663 to 15.674 min.: 2c172051.d\data.ms
bfb
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
36.00	1106	48.10	171	62.00	5079	75.00	61896
37.00	5849	49.00	4871	63.00	3923	76.00	5433
38.00	5012	50.00	22803	64.00	369	77.00	856
39.00	2045	51.00	6918	65.00	46	77.95	604
39.95	89	51.95	372	66.90	114	78.90	2815
41.10	40	54.95	358	68.00	11884	79.90	845
42.80	50	56.00	1695	69.00	12115	80.90	2966
43.95	454	57.00	3020	70.00	906	81.90	672
45.00	1080	57.90	49	72.00	700	86.00	204
47.00	1740	60.00	1105	73.00	5136	86.95	6611
47.90	433	61.00	5442	74.00	19931	87.90	6288

Average of 15.663 to 15.674 min.: 2c172051.d\data.ms
bfb
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
90.85	387	106.70	46	129.85	520	147.85	320
91.95	3481	106.90	104	130.75	132	148.75	97
93.00	5015	111.80	51	134.80	250	149.80	44
94.00	14754	114.90	97	136.75	255	153.00	59
95.00	140835	115.85	415	139.80	43	154.80	381
96.00	9449	116.90	668	140.90	1124	156.85	252
96.95	284	117.85	435	141.85	135	158.85	138
102.80	49	118.90	638	142.85	1187	160.85	97
103.90	545	123.80	61	144.80	52	171.80	193
104.90	195	127.90	498	145.85	202	173.90	145725
105.90	507	128.85	199	146.90	47	174.90	11094

Average of 15.663 to 15.674 min.: 2c172051.d\data.ms
bfb
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
175.90	143789						
176.90	9445						
177.85	314						

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170984.D
Acq On : 30 Oct 2019 6:29 pm
Operator : brittank
Sample : IC7685-0.2
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 31 11:43:01 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 08:40:48 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Tert Butyl Alcohol-d9	8.197	65	417527	500.00	ug/L		0.00
5) pentafluorobenzene	10.651	168	376683	50.00	ug/L		0.00
51) 1,4-difluorobenzene	11.595	114	559979	50.00	ug/L		0.00
74) chlorobenzene-d5	14.583	117	505173	50.00	ug/L		0.00
97) 1,4-dichlorobenzene-d4	16.759	152	299176	50.00	ug/L		0.00
System Monitoring Compounds							
44) dibromofluoromethane (s)	10.677	113	168401	48.89	ug/L		0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 97.78%				
52) 1,2-dichloroethane-d4 (s)	11.112	65	217390	52.77	ug/L		0.00
Spiked Amount 50.000	Range 81 - 124		Recovery = 105.54%				
75) toluene-d8 (s)	13.162	98	581145	48.51	ug/L		0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 97.02%				
98) 4-bromofluorobenzene (s)	15.668	95	238622	49.01	ug/L		0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 98.02%				
Target Compounds							Qvalue
7) dichlorodifluoromethane	4.343	85	1257	0.17	ug/L	#	51
8) chloromethane	4.773	50	1904	0.23	ug/L		93
9) vinyl chloride	5.046	62	1426	0.19	ug/L	#	51
26) methyl tert butyl ether	8.622	73	2908	0.25	ug/L		85
27) trans-1,2-dichloroethene	8.648	96	809	0.20	ug/L		93
28) hexane	9.052	56	536	0.18	ug/L	#	47
29) di-isopropyl ether	9.293	45	3225	0.23	ug/L		81
30) 1,1-dichloroethane	9.293	63	1499	0.21	ug/L		86
31) chloroprene	9.392	53	1117	0.19	ug/L		85
34) ethyl tert-butyl ether	9.807	59	2484	0.21	ug/L		93
37) 2,2-dichloropropane	10.106	77	1084	0.20	ug/L		81
39) propionitrile	10.095	54	2050	2.00	ug/L		89
42) chloroform	10.478	83	1704	0.23	ug/L		89
46) 1,1,1-trichloroethane	10.756	97	1243	0.20	ug/L		86
47) cyclohexane	10.876	84	1393	0.23	ug/L	#	62
48) 1,1-dichloropropene	10.929	75	1170	0.23	ug/L	#	57
49) carbon tetrachloride	10.944	117	815	0.16	ug/L		89
55) iso-octane	11.275	57	2539	0.20	ug/L		81
56) benzene	11.180	78	3348	0.23	ug/L		99
62) trichloroethene	11.899	95	826	0.22	ug/L		88
64) 2-chloroethyl vinyl ether	12.664	63	2178	0.94	ug/L		94
66) 1,2-dichloropropane	12.182	63	903	0.23	ug/L		97
67) dibromomethane	12.292	93	493	0.18	ug/L		93
68) methylcyclohexane	12.187	83	1175	0.18	ug/L		90
69) bromodichloromethane	12.433	83	1012	0.20	ug/L		64
71) cis-1,3-dichloropropene	12.869	75	1206	0.20	ug/L		85
72) 4-methyl-2-pentanone	12.973	58	1922	0.86	ug/L		88
76) toluene	13.236	92	1883	0.21	ug/L	#	85
78) trans-1,3-dichloropropene	13.409	75	1043	0.19	ug/L		97
79) 1,1,2-trichloroethane	13.618	83	641	0.20	ug/L	#	75
80) 2-hexanone	13.765	58	1691	0.77	ug/L		94
81) tetrachloroethene	13.760	164	666	0.19	ug/L		83

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170984.D
Acq On : 30 Oct 2019 6:29 pm
Operator : brittank
Sample : IC7685-0.2
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 31 11:43:01 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 08:40:48 2019
Response via : Initial Calibration

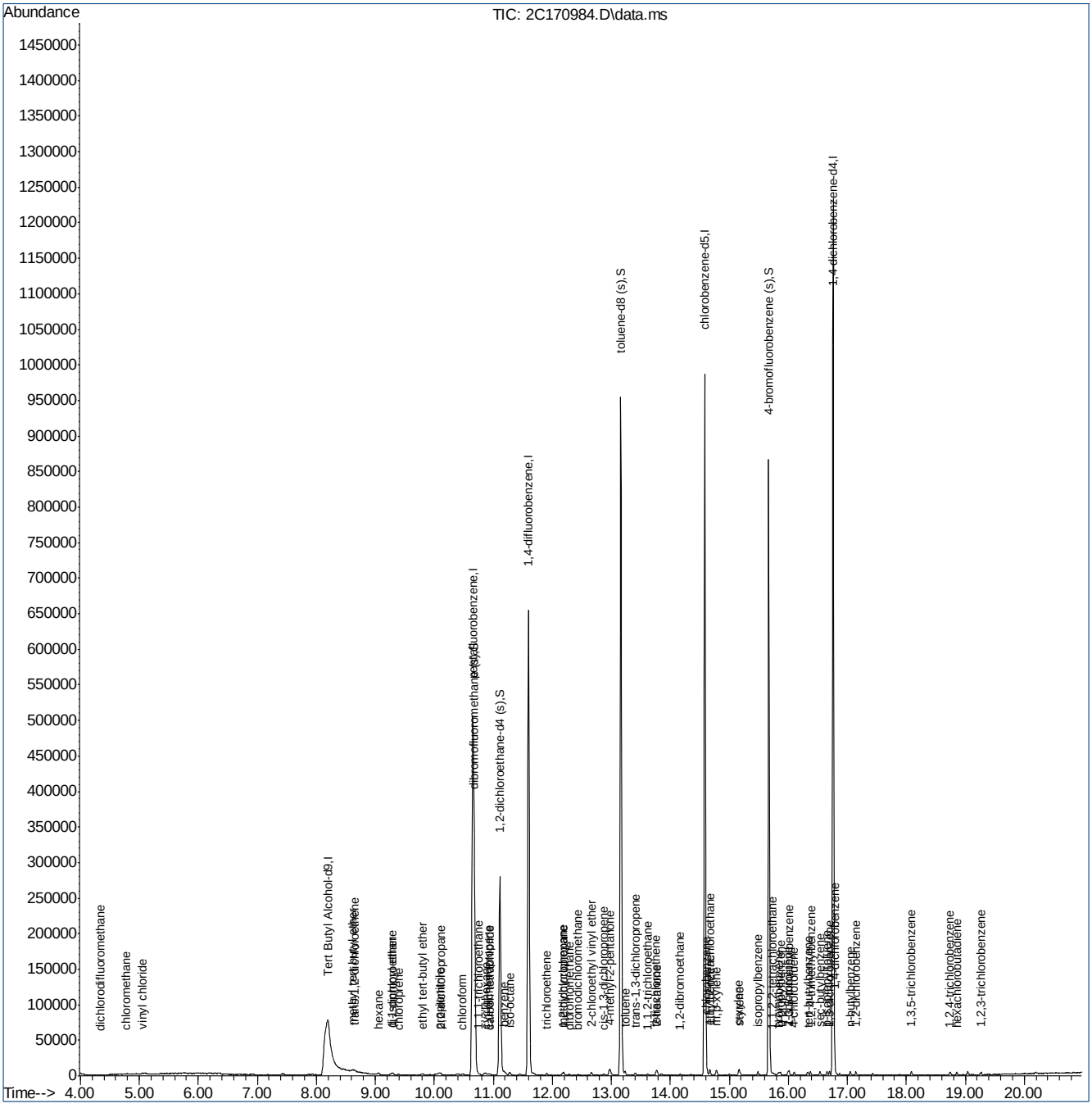
	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
85)	1,2-dibromoethane	14.158	107	943	0.20	ug/L		82
87)	chlorobenzene	14.615	112	2085	0.22	ug/L		96
88)	1,1,1,2-tetrachloroethane	14.672	131	744	0.20	ug/L		76
89)	ethylbenzene	14.672	91	3314	0.21	ug/L		97
90)	m,p-xylene	14.788	106	2597	0.42	ug/L		94
91)	o-xylene	15.160	106	1358	0.21	ug/L		98
92)	styrene	15.170	104	2158	0.21	ug/L		93
95)	isopropylbenzene	15.485	105	3241	0.19	ug/L		94
99)	bromobenzene	15.841	156	1145	0.22	ug/L		84
100)	1,1,2,2-tetrachloroethane	15.737	83	1135	0.19	ug/L		90
103)	n-propylbenzene	15.868	91	3688	0.20	ug/L		92
104)	2-chlorotoluene	15.993	126	903	0.20	ug/L		96
105)	4-chlorotoluene	16.093	91	2609	0.22	ug/L		88
106)	1,3,5-trimethylbenzene	16.014	105	2958	0.21	ug/L		92
107)	tert-butylbenzene	16.334	119	2197	0.18	ug/L		86
108)	1,2,4-trimethylbenzene	16.381	105	2702	0.19	ug/L		96
109)	sec-butylbenzene	16.533	105	3633	0.19	ug/L		92
110)	1,3-dichlorobenzene	16.696	146	2121	0.22	ug/L		98
111)	p-isopropyltoluene	16.654	119	2868	0.18	ug/L		99
112)	1,4-dichlorobenzene	16.785	146	2258	0.24	ug/L		90
113)	1,2-dichlorobenzene	17.142	146	2276	0.23	ug/L		82
114)	n-butylbenzene	17.047	92	1439	0.18	ug/L	#	74
116)	1,3,5-trichlorobenzene	18.085	180	1813	0.20	ug/L		93
118)	1,2,4-trichlorobenzene	18.741	180	1627	0.22	ug/L		88
120)	hexachlorobutadiene	18.856	225	946	0.22	ug/L		95
122)	1,2,3-trichlorobenzene	19.265	180	1567	0.22	ug/L		79

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170984.D
Acq On : 30 Oct 2019 6:29 pm
Operator : brittank
Sample : IC7685-0.2
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 31 11:43:01 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 08:40:48 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170985.D
Acq On : 30 Oct 2019 6:57 pm
Operator : brittank
Sample : IC7685-0.5
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 31 11:46:11 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 08:42:00 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Tert Butyl Alcohol-d9	8.181	65	380891	500.00	ug/L		-0.01
5) pentafluorobenzene	10.656	168	367054	50.00	ug/L		0.00
51) 1,4-difluorobenzene	11.595	114	549492	50.00	ug/L		0.00
74) chlorobenzene-d5	14.583	117	492011	50.00	ug/L		0.00
97) 1,4-dichlorobenzene-d4	16.759	152	289001	50.00	ug/L		0.00
System Monitoring Compounds							
44) dibromofluoromethane (s)	10.677	113	165653	49.35	ug/L		0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 98.70%				
52) 1,2-dichloroethane-d4 (s)	11.112	65	212950	52.68	ug/L		0.00
Spiked Amount 50.000	Range 81 - 124		Recovery = 105.36%				
75) toluene-d8 (s)	13.162	98	573078	49.12	ug/L		0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 98.24%				
98) 4-bromofluorobenzene (s)	15.668	95	231162	49.15	ug/L		0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 98.30%				
Target Compounds							Qvalue
6) chlorodifluoromethane	4.375	51	4025	0.59	ug/L		76
7) dichlorodifluoromethane	4.349	85	3469	0.47	ug/L		93
8) chloromethane	4.784	50	4507	0.55	ug/L		99
9) vinyl chloride	5.056	62	3872	0.53	ug/L		84
11) bromomethane	5.749	94	2777	0.59	ug/L		78
13) trichlorofluoromethane	6.483	101	3583	0.50	ug/L		70
15) ethyl ether	6.912	74	1009	0.46	ug/L	#	47
18) freon 113	7.426	151	2077	0.58	ug/L	#	73
19) 1,1-dichloroethene	7.442	96	2163	0.64	ug/L	#	78
21) iodomethane	7.715	142	3180	0.55	ug/L		85
23) carbon disulfide	7.888	76	5897	0.56	ug/L		78
24) methylene chloride	8.239	84	2529	0.55	ug/L	#	71
26) methyl tert butyl ether	8.622	73	6079	0.53	ug/L		98
27) trans-1,2-dichloroethene	8.648	96	2156	0.54	ug/L	#	73
28) hexane	9.052	56	1382	0.48	ug/L		95
29) di-isopropyl ether	9.288	45	6948	0.51	ug/L		83
30) 1,1-dichloroethane	9.282	63	3456	0.50	ug/L		72
31) chloroprene	9.392	53	2626	0.46	ug/L		81
34) ethyl tert-butyl ether	9.791	59	5889	0.51	ug/L		88
37) 2,2-dichloropropane	10.106	77	2889	0.55	ug/L		73
38) cis-1,2-dichloroethene	10.064	96	2504	0.60	ug/L		84
39) propionitrile	10.095	54	4514	4.52	ug/L		84
40) bromochloromethane	10.383	128	1028	0.47	ug/L		93
42) chloroform	10.478	83	4055	0.56	ug/L		87
45) methacrylonitrile	10.289	67	860	0.42	ug/L	#	49
46) 1,1,1-trichloroethane	10.750	97	3121	0.51	ug/L		84
47) cyclohexane	10.871	84	2955	0.51	ug/L	#	76
48) 1,1-dichloropropene	10.929	75	2526	0.52	ug/L		91
49) carbon tetrachloride	10.955	117	2355	0.48	ug/L	#	75
55) iso-octane	11.285	57	6086	0.49	ug/L		91
56) benzene	11.175	78	7372	0.51	ug/L		100
57) tert-amyl methyl ether	11.280	87	1238	0.48	ug/L	#	40

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170985.D
Acq On : 30 Oct 2019 6:57 pm
Operator : brittank
Sample : IC7685-0.5
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 31 11:46:11 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 08:42:00 2019
Response via : Initial Calibration

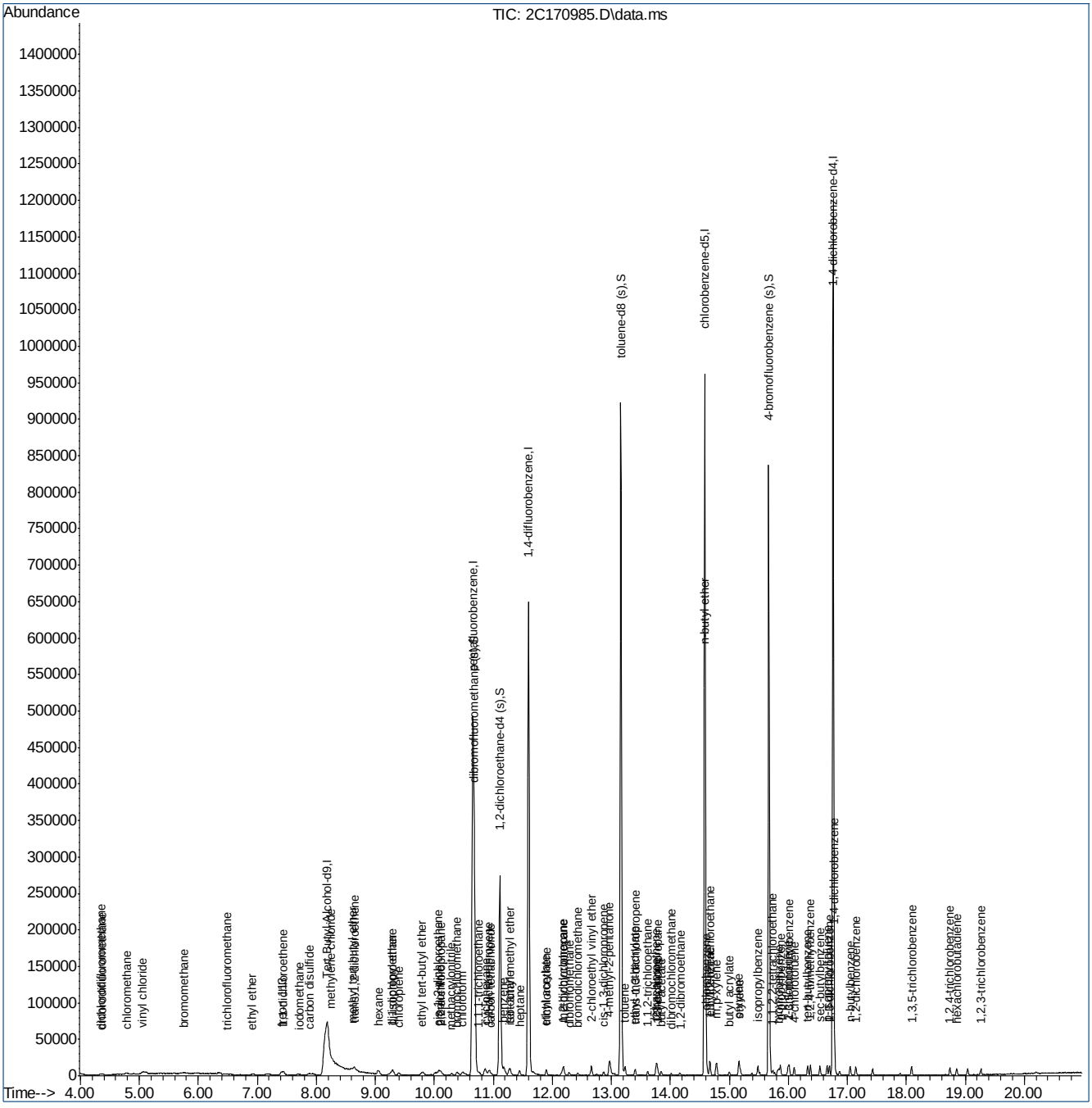
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
58) heptane	11.453	57	1294	0.51	ug/L		81
61) ethyl acrylate	11.893	55	2847	0.50	ug/L		72
62) trichloroethene	11.904	95	2002	0.54	ug/L		89
64) 2-chloroethyl vinyl ether	12.664	63	5112	2.24	ug/L		99
66) 1,2-dichloropropane	12.182	63	1926	0.50	ug/L		77
67) dibromomethane	12.287	93	1405	0.53	ug/L		87
68) methylcyclohexane	12.187	83	3278	0.52	ug/L		96
69) bromodichloromethane	12.433	83	2318	0.46	ug/L		94
71) cis-1,3-dichloropropene	12.874	75	2769	0.47	ug/L		93
72) 4-methyl-2-pentanone	12.968	58	3913	1.78	ug/L		99
76) toluene	13.230	92	4103	0.48	ug/L	#	83
77) ethyl methacrylate	13.403	69	2110	0.45	ug/L		92
78) trans-1,3-dichloropropene	13.409	75	2250	0.43	ug/L		78
79) 1,1,2-trichloroethane	13.613	83	1624	0.52	ug/L	#	81
80) 2-hexanone	13.770	58	3707	1.74	ug/L	#	81
81) tetrachloroethene	13.760	164	1787	0.53	ug/L		85
82) 1,3-dichloropropane	13.786	76	2946	0.52	ug/L		77
83) butyl acetate	13.844	56	1447	0.46	ug/L		94
84) dibromochloromethane	14.017	129	1762	0.45	ug/L		89
85) 1,2-dibromoethane	14.169	107	2124	0.46	ug/L		81
86) n-butyl ether	14.573	57	6491	0.48	ug/L	#	1
87) chlorobenzene	14.615	112	4580	0.49	ug/L		97
88) 1,1,1,2-tetrachloroethane	14.677	131	1904	0.53	ug/L		86
89) ethylbenzene	14.672	91	7548	0.50	ug/L		97
90) m,p-xylene	14.782	106	5983	1.00	ug/L		95
91) o-xylene	15.155	106	2909	0.46	ug/L		81
92) styrene	15.170	104	4364	0.44	ug/L		90
93) butyl acrylate	14.997	55	3313	0.43	ug/L		96
95) isopropylbenzene	15.485	105	7789	0.48	ug/L		97
99) bromobenzene	15.841	156	2502	0.50	ug/L		91
100) 1,1,2,2-tetrachloroethane	15.737	83	2631	0.44	ug/L		79
103) n-propylbenzene	15.868	91	9190	0.51	ug/L		98
104) 2-chlorotoluene	15.993	126	2037	0.48	ug/L		86
105) 4-chlorotoluene	16.098	91	5633	0.48	ug/L		91
106) 1,3,5-trimethylbenzene	16.014	105	6444	0.48	ug/L		96
107) tert-butylbenzene	16.329	119	5848	0.49	ug/L		95
108) 1,2,4-trimethylbenzene	16.376	105	6468	0.47	ug/L		98
109) sec-butylbenzene	16.533	105	8273	0.46	ug/L		94
110) 1,3-dichlorobenzene	16.696	146	4673	0.50	ug/L		91
111) p-isopropyltoluene	16.659	119	6869	0.46	ug/L		98
112) 1,4-dichlorobenzene	16.780	146	4725	0.52	ug/L		97
113) 1,2-dichlorobenzene	17.147	146	4968	0.51	ug/L		91
114) n-butylbenzene	17.047	92	3442	0.45	ug/L		93
116) 1,3,5-trichlorobenzene	18.091	180	4147	0.48	ug/L		92
118) 1,2,4-trichlorobenzene	18.736	180	3242	0.44	ug/L		82
120) hexachlorobutadiene	18.856	225	2157	0.51	ug/L		83
122) 1,2,3-trichlorobenzene	19.265	180	3006	0.44	ug/L		93

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170985.D
Acq On : 30 Oct 2019 6:57 pm
Operator : brittank
Sample : IC7685-0.5
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 31 11:46:11 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 08:42:00 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170986.D
Acq On : 30 Oct 2019 7:26 pm
Operator : brittank
Sample : IC7685-1
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 31 12:02:21 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:01:27 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Tert Butyl Alcohol-d9	8.176	65	373364	500.00	ug/L		-0.02
5) pentafluorobenzene	10.651	168	356583	50.00	ug/L		0.00
51) 1,4-difluorobenzene	11.594	114	539334	50.00	ug/L		0.00
74) chlorobenzene-d5	14.583	117	482896	50.00	ug/L		0.00
97) 1,4-dichlorobenzene-d4	16.759	152	285521	50.00	ug/L		0.00
System Monitoring Compounds							
44) dibromofluoromethane (s)	10.677	113	163292	50.10	ug/L		0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 100.20%				
52) 1,2-dichloroethane-d4 (s)	11.112	65	208388	52.39	ug/L		0.00
Spiked Amount 50.000	Range 81 - 124		Recovery = 104.78%				
75) toluene-d8 (s)	13.162	98	560276	48.94	ug/L		0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 97.88%				
98) 4-bromofluorobenzene (s)	15.668	95	228022	49.06	ug/L		0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 98.12%				
Target Compounds							Qvalue
3) tertiary butyl alcohol	8.291	59	3591	4.35	ug/L		72
6) chlorodifluoromethane	4.380	51	7216	1.03	ug/L		96
7) dichlorodifluoromethane	4.328	85	7087	0.99	ug/L		85
8) chloromethane	4.784	50	8359	1.05	ug/L		89
9) vinyl chloride	5.051	62	6803	0.96	ug/L		92
10) 1,3-butadiene	5.093	54	5621	1.15	ug/L		97
11) bromomethane	5.743	94	5211	1.09	ug/L		83
12) chloroethane	5.969	64	3552	1.07	ug/L		93
13) trichlorofluoromethane	6.488	101	6952	1.01	ug/L		99
14) vinyl bromide	6.362	106	3276	0.95	ug/L		81
15) ethyl ether	6.923	74	2261	1.02	ug/L	#	82
16) 2-chloropropane	7.196	43	9078	1.13	ug/L		83
18) freon 113	7.442	151	3842	1.05	ug/L	#	78
19) 1,1-dichloroethene	7.426	96	4298	1.07	ug/L		90
20) acetone	7.405	58	2237	3.87	ug/L	#	57
21) iodomethane	7.709	142	6048	0.99	ug/L		89
23) carbon disulfide	7.877	76	11657	1.03	ug/L		86
24) methylene chloride	8.228	84	5275	1.14	ug/L	#	80
26) methyl tert butyl ether	8.611	73	12024	0.99	ug/L		94
27) trans-1,2-dichloroethene	8.648	96	4183	1.08	ug/L		90
28) hexane	9.052	56	3125	1.11	ug/L	#	83
29) di-isopropyl ether	9.282	45	13591	1.00	ug/L		89
30) 1,1-dichloroethane	9.288	63	7192	1.07	ug/L		95
31) chloroprene	9.398	53	5618	1.02	ug/L		91
32) acrylonitrile	8.538	53	2181	0.93	ug/L		90
34) ethyl tert-butyl ether	9.796	59	12069	1.02	ug/L		93
35) 2-butanone	10.006	72	2707	3.82	ug/L	#	61
37) 2,2-dichloropropane	10.100	77	5316	1.04	ug/L		90
38) cis-1,2-dichloroethene	10.069	96	4621	1.10	ug/L		90
39) propionitrile	10.084	54	10465	10.65	ug/L		88
40) bromochloromethane	10.373	128	2255	1.07	ug/L	#	85
42) chloroform	10.472	83	7360	1.05	ug/L		86

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170986.D
Acq On : 30 Oct 2019 7:26 pm
Operator : brittank
Sample : IC7685-1
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 31 12:02:21 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:01:27 2019
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
43)	t-butyl formate	10.514	59	2705	0.89	ug/L		81
45)	methacrylonitrile	10.289	67	1930	0.98	ug/L	#	76
46)	1,1,1-trichloroethane	10.745	97	6001	1.01	ug/L		80
47)	cyclohexane	10.871	84	5847	1.03	ug/L	#	78
48)	1,1-dichloropropene	10.929	75	4802	1.01	ug/L		93
49)	carbon tetrachloride	10.955	117	5131	1.07	ug/L		95
53)	n-butyl alcohol	11.668	56	11465	48.18	ug/L		89
55)	iso-octane	11.285	57	12682	1.04	ug/L		93
56)	benzene	11.175	78	14708	1.04	ug/L		97
57)	tert-amyl methyl ether	11.269	87	2604	1.04	ug/L		94
58)	heptane	11.448	57	2784	1.07	ug/L		87
60)	1,2-dichloroethane	11.212	62	6240	1.17	ug/L		96
61)	ethyl acrylate	11.893	55	5909	0.99	ug/L		96
62)	trichloroethene	11.899	95	3766	1.03	ug/L		90
64)	2-chloroethyl vinyl ether	12.664	63	10730	4.79	ug/L		98
66)	1,2-dichloropropane	12.176	63	4135	1.10	ug/L		91
67)	dibromomethane	12.287	93	2723	1.05	ug/L		86
68)	methylcyclohexane	12.192	83	6299	1.01	ug/L		97
69)	bromodichloromethane	12.428	83	4934	1.00	ug/L		95
70)	epichlorohydrin	12.748	57	3270	4.93	ug/L		91
71)	cis-1,3-dichloropropene	12.869	75	5463	0.94	ug/L		98
72)	4-methyl-2-pentanone	12.968	58	9136	4.23	ug/L		92
73)	3-methyl-1-butanol	12.979	55	8251	21.27	ug/L		90
76)	toluene	13.230	92	8150	0.97	ug/L		92
77)	ethyl methacrylate	13.398	69	4313	0.91	ug/L		98
78)	trans-1,3-dichloropropene	13.409	75	4711	0.91	ug/L		82
79)	1,1,2-trichloroethane	13.618	83	2859	0.94	ug/L		93
80)	2-hexanone	13.770	58	8635	4.12	ug/L		92
81)	tetrachloroethene	13.760	164	3534	1.06	ug/L		89
82)	1,3-dichloropropane	13.786	76	5751	1.05	ug/L		92
83)	butyl acetate	13.844	56	2977	0.97	ug/L		92
84)	dibromochloromethane	14.022	129	3590	0.91	ug/L		98
85)	1,2-dibromoethane	14.164	107	4383	0.97	ug/L		95
86)	n-butyl ether	14.573	57	12669	0.95	ug/L	#	1
87)	chlorobenzene	14.614	112	9243	1.01	ug/L		99
88)	1,1,1,2-tetrachloroethane	14.672	131	3358	0.95	ug/L		91
89)	ethylbenzene	14.672	91	15207	1.02	ug/L		95
90)	m,p-xylene	14.782	106	11588	1.97	ug/L		98
91)	o-xylene	15.160	106	5735	0.93	ug/L		92
92)	styrene	15.170	104	9387	0.96	ug/L		93
93)	butyl acrylate	14.992	55	6615	0.86	ug/L		98
94)	bromoform	15.385	173	2595	0.84	ug/L		88
95)	isopropylbenzene	15.485	105	16266	1.02	ug/L		100
99)	bromobenzene	15.841	156	5297	1.08	ug/L		81
100)	1,1,2,2-tetrachloroethane	15.742	83	5823	1.00	ug/L		95
102)	1,2,3-trichloropropane	15.815	110	1670	1.04	ug/L		89
103)	n-propylbenzene	15.868	91	18180	1.01	ug/L		96
104)	2-chlorotoluene	15.999	126	4380	1.04	ug/L		89
105)	4-chlorotoluene	16.098	91	11517	1.00	ug/L		98
106)	1,3,5-trimethylbenzene	16.014	105	13116	0.99	ug/L		96

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170986.D
Acq On : 30 Oct 2019 7:26 pm
Operator : brittank
Sample : IC7685-1
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 31 12:02:21 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:01:27 2019
Response via : Initial Calibration

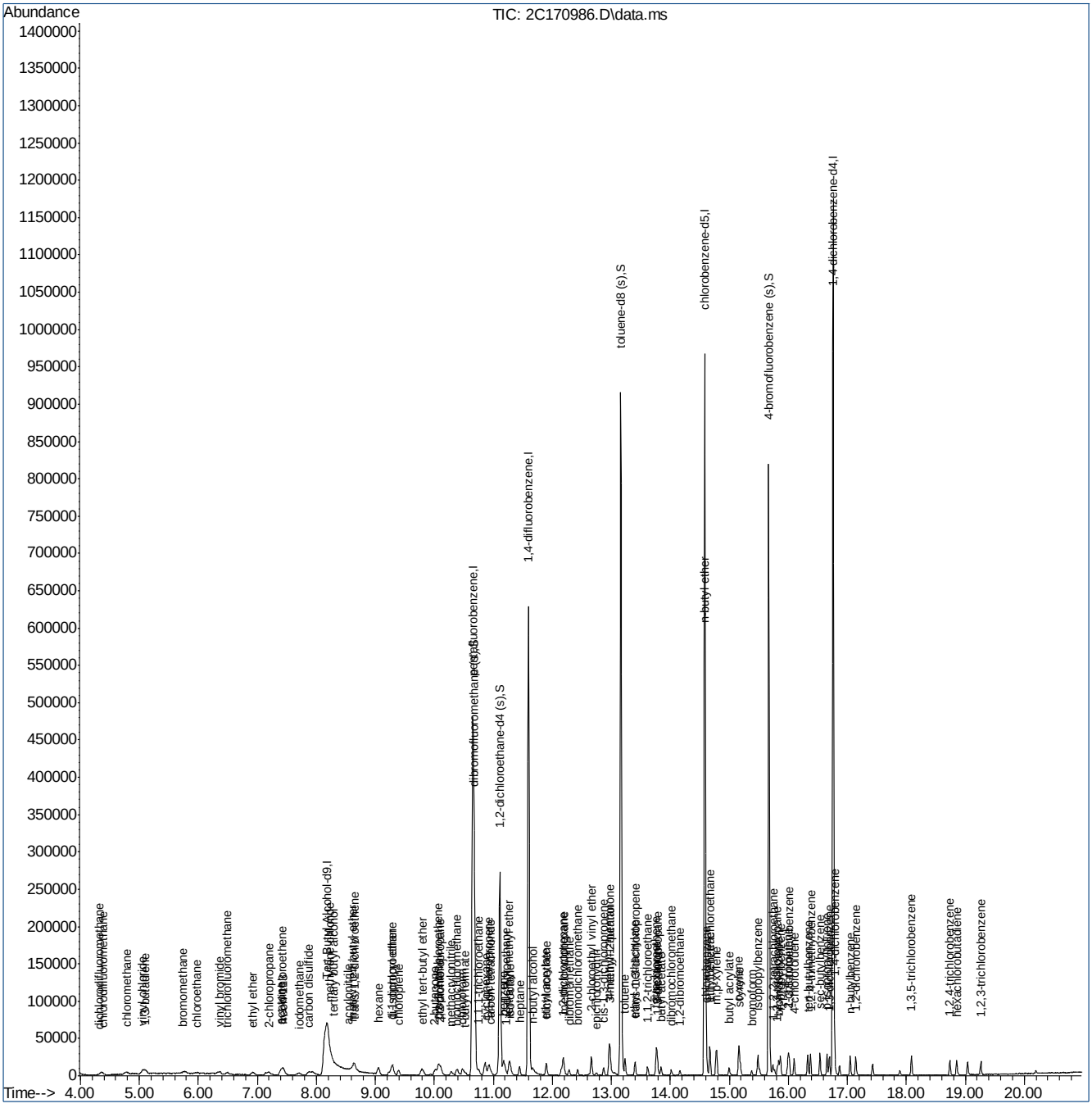
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
107) tert-butylbenzene	16.334	119	11583	0.99	ug/L	91
108) 1,2,4-trimethylbenzene	16.381	105	14049	1.04	ug/L	92
109) sec-butylbenzene	16.533	105	17292	0.97	ug/L	98
110) 1,3-dichlorobenzene	16.696	146	9786	1.07	ug/L	93
111) p-isopropyltoluene	16.654	119	14489	0.98	ug/L	92
112) 1,4-dichlorobenzene	16.785	146	8681	0.97	ug/L	84
113) 1,2-dichlorobenzene	17.142	146	9712	1.01	ug/L	99
114) n-butylbenzene	17.052	92	6721	0.89	ug/L	95
116) 1,3,5-trichlorobenzene	18.085	180	8681	1.01	ug/L	89
118) 1,2,4-trichlorobenzene	18.741	180	6242	0.86	ug/L	90
120) hexachlorobutadiene	18.861	225	4274	1.03	ug/L	88
122) 1,2,3-trichlorobenzene	19.265	180	6027	0.89	ug/L	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170986.D
Acq On : 30 Oct 2019 7:26 pm
Operator : brittank
Sample : IC7685-1
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 31 12:02:21 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:01:27 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170987.D
Acq On : 30 Oct 2019 7:54 pm
Operator : brittank
Sample : IC7685-2
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 31 12:04:16 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:01:27 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	8.181	65	381694	500.00	ug/L	-0.02
5) pentafluorobenzene	10.656	168	378298	50.00	ug/L	0.00
51) 1,4-difluorobenzene	11.595	114	563906	50.00	ug/L	0.00
74) chlorobenzene-d5	14.583	117	500281	50.00	ug/L	0.00
97) 1,4-dichlorobenzene-d4	16.759	152	288597	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.682	113	169970	49.15	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 98.30%			
52) 1,2-dichloroethane-d4 (s)	11.112	65	214993	51.69	ug/L	0.00
Spiked Amount 50.000	Range 81 - 124		Recovery = 103.38%			
75) toluene-d8 (s)	13.162	98	581530	49.03	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 98.06%			
98) 4-bromofluorobenzene (s)	15.668	95	232456	49.48	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 98.96%			
Target Compounds						Qvalue
3) tertiary butyl alcohol	8.312	59	9427	11.16	ug/L	90
4) 1,4-dioxane	12.239	88	3162	44.05	ug/L	95
6) chlorodifluoromethane	4.375	51	15381	2.07	ug/L	96
7) dichlorodifluoromethane	4.349	85	15488	2.03	ug/L	96
8) chloromethane	4.794	50	16876	1.99	ug/L	92
9) vinyl chloride	5.056	62	15371	2.04	ug/L	98
10) 1,3-butadiene	5.104	54	11118	2.14	ug/L	87
11) bromomethane	5.759	94	10270	2.03	ug/L	93
12) chloroethane	5.969	64	7453	2.12	ug/L	97
13) trichlorofluoromethane	6.498	101	15076	2.06	ug/L	89
14) vinyl bromide	6.362	106	7646	2.10	ug/L	87
15) ethyl ether	6.928	74	4870	2.07	ug/L	89
16) 2-chloropropane	7.169	43	18873	2.22	ug/L	93
18) freon 113	7.421	151	7825	2.01	ug/L	95
19) 1,1-dichloroethene	7.416	96	8938	2.10	ug/L	86
20) acetone	7.426	58	4938	8.05	ug/L #	62
21) iodomethane	7.704	142	13309	2.04	ug/L	95
23) carbon disulfide	7.888	76	23917	1.99	ug/L	92
24) methylene chloride	8.239	84	10416	2.12	ug/L	94
25) methyl acetate	7.940	43	12247	2.28	ug/L	91
26) methyl tert butyl ether	8.622	73	26476	2.05	ug/L	90
27) trans-1,2-dichloroethene	8.648	96	8857	2.16	ug/L	94
28) hexane	9.057	56	6503	2.17	ug/L #	81
29) di-isopropyl ether	9.298	45	29464	2.05	ug/L	92
30) 1,1-dichloroethane	9.282	63	15453	2.16	ug/L	95
31) chloroprene	9.403	53	12331	2.11	ug/L	96
32) acrylonitrile	8.548	53	5123	2.05	ug/L	93
34) ethyl tert-butyl ether	9.796	59	25106	1.99	ug/L	91
35) 2-butanone	10.006	72	6273	8.35	ug/L	96
37) 2,2-dichloropropane	10.100	77	11921	2.19	ug/L	95
38) cis-1,2-dichloroethene	10.069	96	9244	2.08	ug/L	92
39) propionitrile	10.085	54	23674	22.71	ug/L	97

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170987.D
Acq On : 30 Oct 2019 7:54 pm
Operator : brittank
Sample : IC7685-2
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 31 12:04:16 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:01:27 2019
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
40)	bromochloromethane	10.383	128	4948	2.21	ug/L		93
42)	chloroform	10.478	83	16139	2.17	ug/L		97
43)	t-butyl formate	10.525	59	6231	1.92	ug/L		86
45)	methacrylonitrile	10.294	67	4141	1.98	ug/L		92
46)	1,1,1-trichloroethane	10.750	97	12553	1.99	ug/L		94
47)	cyclohexane	10.871	84	12180	2.03	ug/L		98
48)	1,1-dichloropropene	10.929	75	10815	2.14	ug/L		99
49)	carbon tetrachloride	10.955	117	10993	2.17	ug/L		90
53)	n-butyl alcohol	11.663	56	24689	99.24	ug/L		89
55)	iso-octane	11.285	57	27044	2.13	ug/L		97
56)	benzene	11.180	78	31454	2.12	ug/L		96
57)	tert-amyl methyl ether	11.269	87	5720	2.19	ug/L	#	86
58)	heptane	11.448	57	5723	2.11	ug/L		96
59)	isopropyl acetate	11.107	87	2211	2.13	ug/L	#	33
60)	1,2-dichloroethane	11.207	62	12621	2.26	ug/L		98
61)	ethyl acrylate	11.893	55	12963	2.07	ug/L		94
62)	trichloroethene	11.904	95	8210	2.14	ug/L		91
64)	2-chloroethyl vinyl ether	12.664	63	23801	10.16	ug/L		98
65)	methyl methacrylate	12.156	100	2259	1.87	ug/L	#	83
66)	1,2-dichloropropane	12.176	63	8078	2.05	ug/L		98
67)	dibromomethane	12.281	93	5637	2.09	ug/L		98
68)	methylcyclohexane	12.192	83	14107	2.17	ug/L		98
69)	bromodichloromethane	12.433	83	10480	2.03	ug/L		98
70)	epichlorohydrin	12.743	57	6604	9.51	ug/L		97
71)	cis-1,3-dichloropropene	12.874	75	12702	2.10	ug/L		94
72)	4-methyl-2-pentanone	12.968	58	19439	8.61	ug/L		87
73)	3-methyl-1-butanol	12.979	55	16820	41.48	ug/L		92
76)	toluene	13.236	92	18107	2.09	ug/L		98
77)	ethyl methacrylate	13.398	69	9931	2.03	ug/L		98
78)	trans-1,3-dichloropropene	13.409	75	10950	2.05	ug/L		80
79)	1,1,2-trichloroethane	13.618	83	6491	2.06	ug/L		91
80)	2-hexanone	13.765	58	18615	8.58	ug/L		98
81)	tetrachloroethene	13.760	164	7692	2.23	ug/L		94
82)	1,3-dichloropropane	13.786	76	12436	2.19	ug/L		99
83)	butyl acetate	13.849	56	6810	2.15	ug/L		99
84)	dibromochloromethane	14.017	129	8251	2.02	ug/L		99
85)	1,2-dibromoethane	14.164	107	9354	2.00	ug/L		99
86)	n-butyl ether	14.573	57	27626	2.00	ug/L	#	53
87)	chlorobenzene	14.615	112	19341	2.03	ug/L		96
88)	1,1,1,2-tetrachloroethane	14.677	131	7297	1.99	ug/L		95
89)	ethylbenzene	14.672	91	32449	2.10	ug/L		97
90)	m,p-xylene	14.788	106	25487	4.19	ug/L		94
91)	o-xylene	15.160	106	13201	2.07	ug/L		98
92)	styrene	15.165	104	20864	2.06	ug/L		93
93)	butyl acrylate	14.992	55	15213	1.91	ug/L		95
94)	bromoform	15.380	173	5638	1.76	ug/L		94
95)	isopropylbenzene	15.485	105	34485	2.08	ug/L		97
96)	cis-1,4-dichloro-2-butene	15.511	75	3770	1.86	ug/L		92
99)	bromobenzene	15.841	156	10351	2.09	ug/L		98
100)	1,1,2,2-tetrachloroethane	15.736	83	12332	2.09	ug/L		91

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170987.D
Acq On : 30 Oct 2019 7:54 pm
Operator : brittank
Sample : IC7685-2
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 31 12:04:16 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:01:27 2019
Response via : Initial Calibration

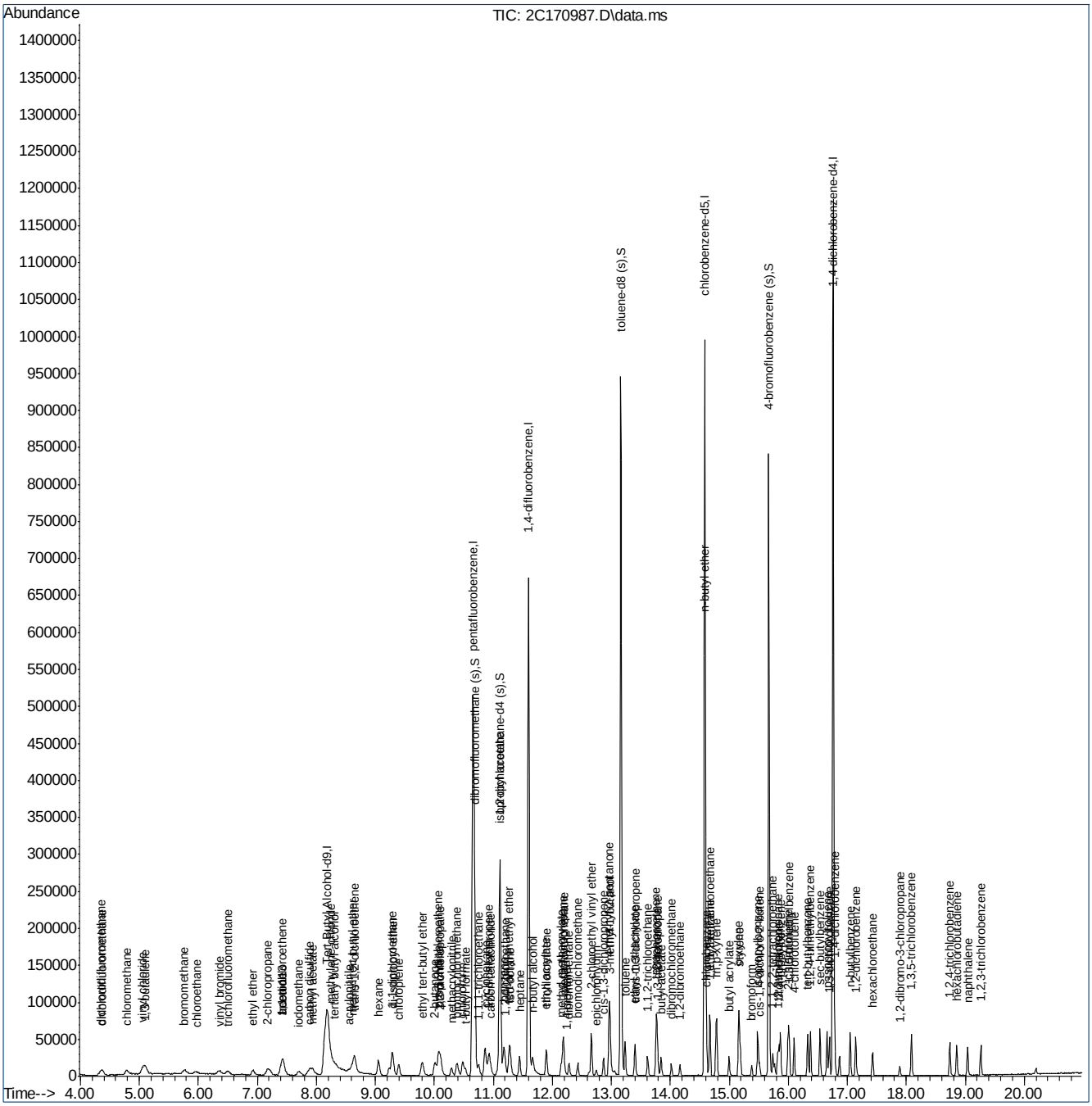
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
102) 1,2,3-trichloropropane	15.826	110	3648	2.25	ug/L	83
103) n-propylbenzene	15.868	91	39802	2.20	ug/L	98
104) 2-chlorotoluene	15.993	126	9191	2.16	ug/L	93
105) 4-chlorotoluene	16.098	91	25077	2.15	ug/L	100
106) 1,3,5-trimethylbenzene	16.014	105	28603	2.13	ug/L	99
107) tert-butylbenzene	16.329	119	24402	2.06	ug/L	97
108) 1,2,4-trimethylbenzene	16.376	105	29169	2.14	ug/L	98
109) sec-butylbenzene	16.533	105	37482	2.08	ug/L	98
110) 1,3-dichlorobenzene	16.696	146	20354	2.19	ug/L	96
111) p-isopropyltoluene	16.659	119	31241	2.08	ug/L	97
112) 1,4-dichlorobenzene	16.785	146	19093	2.12	ug/L	99
113) 1,2-dichlorobenzene	17.142	146	20528	2.11	ug/L	98
114) n-butylbenzene	17.047	92	15590	2.05	ug/L	97
115) 1,2-dibromo-3-chloropr...	17.891	75	2769	1.84	ug/L	91
116) 1,3,5-trichlorobenzene	18.085	180	17680	2.04	ug/L	98
118) 1,2,4-trichlorobenzene	18.736	180	14012	1.92	ug/L	93
120) hexachlorobutadiene	18.856	225	8637	2.05	ug/L	95
121) naphthalene	19.040	128	29373	1.64	ug/L	97
122) 1,2,3-trichlorobenzene	19.265	180	12769	1.86	ug/L	92
123) hexachloroethane	17.430	201	4571	1.65	ug/L	85

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170987.D
Acq On : 30 Oct 2019 7:54 pm
Operator : brittank
Sample : IC7685-2
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 31 12:04:16 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:01:27 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170988.D
Acq On : 30 Oct 2019 8:23 pm
Operator : brittank
Sample : IC7685-4
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 31 12:05:43 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:01:27 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Tert Butyl Alcohol-d9	8.192	65	346690	500.00	ug/L		0.00
5) pentafluorobenzene	10.651	168	360890	50.00	ug/L		0.00
51) 1,4-difluorobenzene	11.595	114	539101	50.00	ug/L		0.00
74) chlorobenzene-d5	14.583	117	478632	50.00	ug/L		0.00
97) 1,4-dichlorobenzene-d4	16.759	152	280253	50.00	ug/L		0.00
System Monitoring Compounds							
44) dibromofluoromethane (s)	10.677	113	163223	49.48	ug/L		0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 98.96%				
52) 1,2-dichloroethane-d4 (s)	11.112	65	205756	51.75	ug/L		0.00
Spiked Amount 50.000	Range 81 - 124		Recovery = 103.50%				
75) toluene-d8 (s)	13.162	98	560989	49.43	ug/L		0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 98.86%				
98) 4-bromofluorobenzene (s)	15.668	95	223034	48.89	ug/L		0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 97.78%				
Target Compounds							Qvalue
3) tertiary butyl alcohol	8.328	59	16222	21.14	ug/L		97
4) 1,4-dioxane	12.224	88	6158	94.44	ug/L		80
6) chlorodifluoromethane	4.364	51	29337	4.14	ug/L		96
7) dichlorodifluoromethane	4.338	85	28978	3.98	ug/L		97
8) chloromethane	4.784	50	31371	3.88	ug/L		98
9) vinyl chloride	5.051	62	28790	4.01	ug/L		98
10) 1,3-butadiene	5.093	54	20652	4.17	ug/L		94
11) bromomethane	5.764	94	19075	3.96	ug/L		90
12) chloroethane	5.964	64	13986	4.17	ug/L		97
13) trichlorofluoromethane	6.504	101	28902	4.13	ug/L		88
14) vinyl bromide	6.362	106	14085	4.05	ug/L		95
15) ethyl ether	6.918	74	9245	4.13	ug/L	#	84
16) 2-chloropropane	7.164	43	31799	3.92	ug/L		97
17) acrolein	7.185	56	3588	3.26	ug/L		89
18) freon 113	7.426	151	15602	4.19	ug/L		98
19) 1,1-dichloroethene	7.437	96	17097	4.22	ug/L		89
20) acetone	7.411	58	9538	16.30	ug/L		88
21) iodomethane	7.715	142	24852	4.00	ug/L		97
23) carbon disulfide	7.882	76	45262	3.94	ug/L		99
24) methylene chloride	8.223	84	18759	4.01	ug/L		87
25) methyl acetate	7.940	43	19496	3.81	ug/L		95
26) methyl tert butyl ether	8.622	73	50015	4.06	ug/L		94
27) trans-1,2-dichloroethene	8.648	96	15646	4.00	ug/L		93
28) hexane	9.046	56	11509	4.03	ug/L	#	83
29) di-isopropyl ether	9.288	45	55222	4.03	ug/L		90
30) 1,1-dichloroethane	9.282	63	28466	4.17	ug/L		97
31) chloroprene	9.403	53	22873	4.09	ug/L		99
32) acrylonitrile	8.538	53	9532	4.00	ug/L		89
33) vinyl acetate	9.240	86	3304	4.09	ug/L	#	49
34) ethyl tert-butyl ether	9.791	59	48060	4.00	ug/L		99
35) 2-butanone	10.001	72	11415	15.92	ug/L		97
36) ethyl acetate	10.022	45	3763	4.09	ug/L	#	90

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170988.D
Acq On : 30 Oct 2019 8:23 pm
Operator : brittank
Sample : IC7685-4
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 31 12:05:43 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:01:27 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
37) 2,2-dichloropropane	10.100	77	21586	4.16	ug/L		93
38) cis-1,2-dichloroethene	10.069	96	17769	4.18	ug/L		96
39) propionitrile	10.085	54	43174	43.41	ug/L		98
40) bromochloromethane	10.383	128	9119	4.28	ug/L		97
41) tetrahydrofuran	10.410	71	3544	4.22	ug/L		93
42) chloroform	10.478	83	28207	3.97	ug/L		96
43) t-butyl formate	10.514	59	11539	3.74	ug/L		89
45) methacrylonitrile	10.294	67	8454	4.23	ug/L		91
46) 1,1,1-trichloroethane	10.750	97	24023	4.00	ug/L		97
47) cyclohexane	10.876	84	22241	3.89	ug/L		83
48) 1,1-dichloropropene	10.929	75	20119	4.17	ug/L		94
49) carbon tetrachloride	10.955	117	20206	4.18	ug/L		92
53) n-butyl alcohol	11.668	56	44968	189.07	ug/L		87
54) tert-amyl alcohol	11.081	55	7624	22.45	ug/L	#	66
55) iso-octane	11.285	57	48967	4.03	ug/L		94
56) benzene	11.180	78	58646	4.13	ug/L		96
57) tert-amyl methyl ether	11.264	87	10577	4.24	ug/L	#	82
58) heptane	11.448	57	10596	4.09	ug/L		97
59) isopropyl acetate	11.102	87	3938	3.96	ug/L	#	65
60) 1,2-dichloroethane	11.201	62	22742	4.26	ug/L		93
61) ethyl acrylate	11.888	55	24581	4.11	ug/L		99
62) trichloroethene	11.899	95	14910	4.07	ug/L		97
63) 2-nitropropane	12.622	41	4966	3.98	ug/L		80
64) 2-chloroethyl vinyl ether	12.659	63	46761	20.88	ug/L		98
65) methyl methacrylate	12.156	100	4312	3.74	ug/L	#	84
66) 1,2-dichloropropane	12.182	63	15831	4.21	ug/L		99
67) dibromomethane	12.281	93	10546	4.08	ug/L		96
68) methylcyclohexane	12.187	83	26079	4.19	ug/L		96
69) bromodichloromethane	12.433	83	19921	4.03	ug/L		97
70) epichlorohydrin	12.743	57	13731	20.69	ug/L		94
71) cis-1,3-dichloropropene	12.869	75	23655	4.08	ug/L		99
72) 4-methyl-2-pentanone	12.968	58	37032	17.15	ug/L		98
73) 3-methyl-1-butanol	12.979	55	31244	80.59	ug/L		97
76) toluene	13.230	92	32874	3.96	ug/L		95
77) ethyl methacrylate	13.398	69	18350	3.91	ug/L		99
78) trans-1,3-dichloropropene	13.409	75	20907	4.09	ug/L		94
79) 1,1,2-trichloroethane	13.613	83	12532	4.15	ug/L		94
80) 2-hexanone	13.770	58	35785	17.24	ug/L		98
81) tetrachloroethene	13.760	164	13761	4.16	ug/L		96
82) 1,3-dichloropropane	13.786	76	23244	4.28	ug/L		99
83) butyl acetate	13.844	56	12160	4.01	ug/L		91
84) dibromochloromethane	14.017	129	14641	3.75	ug/L		95
85) 1,2-dibromoethane	14.164	107	17807	3.99	ug/L		94
86) n-butyl ether	14.573	57	51785	3.91	ug/L	#	74
87) chlorobenzene	14.615	112	36380	4.00	ug/L		94
88) 1,1,1,2-tetrachloroethane	14.672	131	14120	4.03	ug/L		98
89) ethylbenzene	14.672	91	61510	4.17	ug/L		98
90) m,p-xylene	14.782	106	46429	7.97	ug/L		91
91) o-xylene	15.160	106	25593	4.19	ug/L		98
92) styrene	15.165	104	39920	4.12	ug/L		99

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170988.D
Acq On : 30 Oct 2019 8:23 pm
Operator : brittank
Sample : IC7685-4
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 31 12:05:43 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:01:27 2019
Response via : Initial Calibration

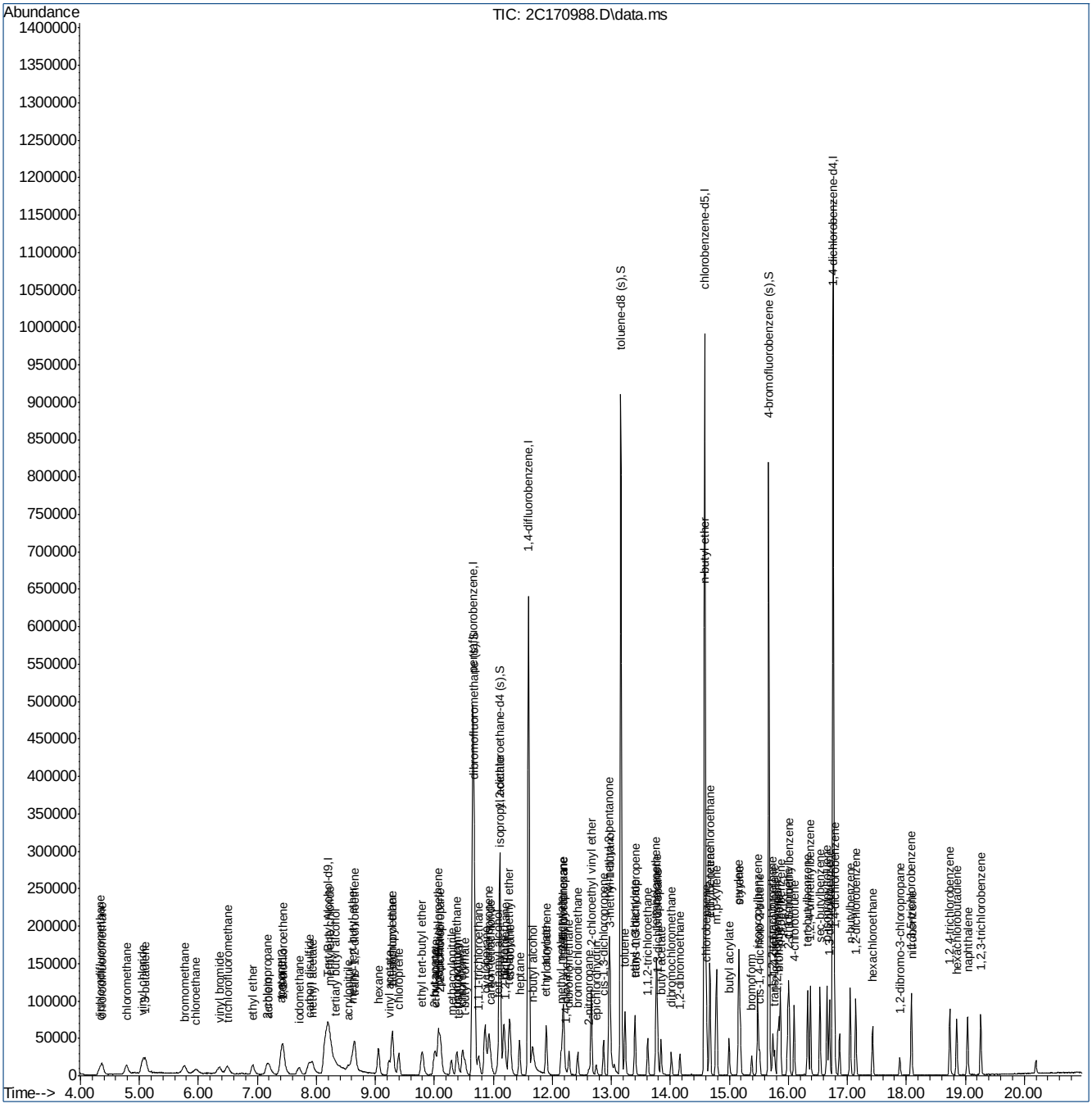
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
93) butyl acrylate	14.992	55	29956	3.94	ug/L		99
94) bromoform	15.380	173	11237	3.68	ug/L		92
95) isopropylbenzene	15.480	105	65343	4.12	ug/L		98
96) cis-1,4-dichloro-2-butene	15.511	75	7425	3.84	ug/L		94
99) bromobenzene	15.841	156	19864	4.13	ug/L		90
100) 1,1,2,2-tetrachloroethane	15.737	83	23844	4.15	ug/L		99
101) trans-1,4-dichloro-2-b...	15.768	88	2701	3.54	ug/L	#	89
102) 1,2,3-trichloropropane	15.815	110	6419	4.07	ug/L		92
103) n-propylbenzene	15.868	91	73807	4.20	ug/L		100
104) 2-chlorotoluene	15.993	126	16812	4.06	ug/L		97
105) 4-chlorotoluene	16.098	91	46243	4.09	ug/L		97
106) 1,3,5-trimethylbenzene	16.014	105	54194	4.16	ug/L		96
107) tert-butylbenzene	16.329	119	46060	4.00	ug/L		98
108) 1,2,4-trimethylbenzene	16.376	105	54863	4.14	ug/L		97
109) sec-butylbenzene	16.533	105	71227	4.08	ug/L		98
110) 1,3-dichlorobenzene	16.696	146	37972	4.21	ug/L		99
111) p-isopropyltoluene	16.654	119	60731	4.17	ug/L		97
112) 1,4-dichlorobenzene	16.785	146	35040	4.00	ug/L		96
113) 1,2-dichlorobenzene	17.142	146	38838	4.12	ug/L		98
114) n-butylbenzene	17.047	92	30169	4.09	ug/L		94
115) 1,2-dibromo-3-chloropr...	17.891	75	5088	3.48	ug/L		93
116) 1,3,5-trichlorobenzene	18.085	180	34706	4.12	ug/L		97
117) nitrobenzene	18.091	77	626	5.02	ug/L		73
118) 1,2,4-trichlorobenzene	18.736	180	27691	3.91	ug/L		95
120) hexachlorobutadiene	18.856	225	17446	4.26	ug/L		96
121) naphthalene	19.040	128	60171	3.45	ug/L		98
122) 1,2,3-trichlorobenzene	19.260	180	25792	3.87	ug/L		98
123) hexachloroethane	17.430	201	9052	3.37	ug/L		89

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170988.D
Acq On : 30 Oct 2019 8:23 pm
Operator : brittank
Sample : IC7685-4
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 31 12:05:43 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:01:27 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170989.D
Acq On : 30 Oct 2019 8:52 pm
Operator : brittank
Sample : IC7685-8
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 31 12:06:06 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 08:42:00 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Tert Butyl Alcohol-d9	8.192	65	381978	500.00	ug/L		0.00
5) pentafluorobenzene	10.651	168	353574	50.00	ug/L		0.00
51) 1,4-difluorobenzene	11.594	114	529481	50.00	ug/L		0.00
74) chlorobenzene-d5	14.583	117	472198	50.00	ug/L		0.00
97) 1,4-dichlorobenzene-d4	16.759	152	272838	50.00	ug/L		0.00
System Monitoring Compounds							
44) dibromofluoromethane (s)	10.677	113	161961	50.09	ug/L		0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 100.18%				
52) 1,2-dichloroethane-d4 (s)	11.112	65	202198	51.91	ug/L		0.00
Spiked Amount 50.000	Range 81 - 124		Recovery = 103.82%				
75) toluene-d8 (s)	13.162	98	546901	48.84	ug/L		0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 97.68%				
98) 4-bromofluorobenzene (s)	15.668	95	218560	49.22	ug/L		0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 98.44%				
Target Compounds							Qvalue
3) tertiary butyl alcohol	8.323	59	32129	35.68	ug/L		98
4) 1,4-dioxane	12.229	88	15199	302.25	ug/L	#	72
6) chlorodifluoromethane	4.370	51	54227	8.19	ug/L		98
7) dichlorodifluoromethane	4.338	85	57654	8.08	ug/L		96
8) chloromethane	4.784	50	60850	7.68	ug/L		98
9) vinyl chloride	5.062	62	56097	7.98	ug/L		96
10) 1,3-butadiene	5.109	54	39009	8.83	ug/L		98
11) bromomethane	5.759	94	36656	8.13	ug/L		96
12) chloroethane	5.963	64	26952	9.18	ug/L		91
13) trichlorofluoromethane	6.488	101	56177	8.15	ug/L		99
14) vinyl bromide	6.362	106	27268	8.75	ug/L		88
15) ethyl ether	6.918	74	16667	7.89	ug/L		88
16) 2-chloropropane	7.169	43	59463	8.31	ug/L		98
17) acrolein	7.185	56	8034	8.80	ug/L		89
18) freon 113	7.426	151	28867	8.38	ug/L		96
19) 1,1-dichloroethene	7.437	96	31069	9.49	ug/L		99
20) acetone	7.416	58	18690	37.56	ug/L	#	83
21) iodomethane	7.715	142	47095	8.45	ug/L		95
23) carbon disulfide	7.877	76	86521	8.54	ug/L		98
24) methylene chloride	8.228	84	34363	7.75	ug/L		99
25) methyl acetate	7.935	43	37895	7.74	ug/L		98
26) methyl tert butyl ether	8.616	73	92407	8.38	ug/L		100
27) trans-1,2-dichloroethene	8.653	96	29289	7.65	ug/L		98
28) hexane	9.052	56	22266	7.96	ug/L		94
29) di-isopropyl ether	9.293	45	103863	7.88	ug/L		97
30) 1,1-dichloroethane	9.287	63	51610	7.72	ug/L		99
31) chloroprene	9.398	53	42841	7.83	ug/L		97
32) acrylonitrile	8.532	53	17626	8.06	ug/L		91
33) vinyl acetate	9.230	86	6103	8.89	ug/L	#	85
34) ethyl tert-butyl ether	9.796	59	89719	8.05	ug/L		94
35) 2-butanone	9.995	72	22178	32.46	ug/L		99
36) ethyl acetate	10.027	45	7536	8.69	ug/L	#	22

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170989.D
Acq On : 30 Oct 2019 8:52 pm
Operator : brittank
Sample : IC7685-8
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 31 12:06:06 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 08:42:00 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
37) 2,2-dichloropropane	10.100	77	39932	7.84	ug/L		87
38) cis-1,2-dichloroethene	10.069	96	32279	8.08	ug/L		98
39) propionitrile	10.079	54	80627	83.88	ug/L		94
40) bromochloromethane	10.383	128	17038	8.15	ug/L		98
41) tetrahydrofuran	10.404	71	6552	6.95	ug/L	#	79
42) chloroform	10.478	83	52162	7.49	ug/L		98
43) t-butyl formate	10.520	59	22750	7.96	ug/L		95
45) methacrylonitrile	10.289	67	15806	8.08	ug/L		92
46) 1,1,1-trichloroethane	10.756	97	44560	7.57	ug/L		93
47) cyclohexane	10.871	84	44247	7.89	ug/L		98
48) 1,1-dichloropropene	10.929	75	36453	7.72	ug/L		97
49) carbon tetrachloride	10.955	117	37534	7.92	ug/L		97
53) n-butyl alcohol	11.657	56	91411	435.74	ug/L		98
54) tert-amyl alcohol	11.081	55	14864	41.22	ug/L	#	88
55) iso-octane	11.280	57	94705	7.94	ug/L		96
56) benzene	11.180	78	106850	7.66	ug/L		99
57) tert-amyl methyl ether	11.269	87	19378	7.85	ug/L		98
58) heptane	11.448	57	20255	8.22	ug/L		98
59) isopropyl acetate	11.102	87	7501	7.77	ug/L		93
60) 1,2-dichloroethane	11.206	62	41043	7.02	ug/L		98
61) ethyl acrylate	11.893	55	46866	8.47	ug/L		99
62) trichloroethene	11.899	95	27887	7.75	ug/L		96
63) 2-nitropropane	12.622	41	8969	7.67	ug/L		94
64) 2-chloroethyl vinyl ether	12.659	63	89041	40.57	ug/L		99
65) methyl methacrylate	12.150	100	8662	7.98	ug/L	#	90
66) 1,2-dichloropropane	12.176	63	28711	7.77	ug/L		96
67) dibromomethane	12.281	93	19745	7.78	ug/L		97
68) methylcyclohexane	12.192	83	49061	8.03	ug/L		99
69) bromodichloromethane	12.433	83	37894	7.80	ug/L		99
70) epichlorohydrin	12.743	57	25649	40.32	ug/L		97
71) cis-1,3-dichloropropene	12.868	75	43517	7.65	ug/L		97
72) 4-methyl-2-pentanone	12.968	58	69104	32.61	ug/L		93
73) 3-methyl-1-butanol	12.979	55	62997	166.43	ug/L		98
76) toluene	13.230	92	61849	7.55	ug/L		97
77) ethyl methacrylate	13.398	69	35093	7.73	ug/L		97
78) trans-1,3-dichloropropene	13.409	75	38227	7.57	ug/L		93
79) 1,1,2-trichloroethane	13.613	83	22365	7.50	ug/L		98
80) 2-hexanone	13.765	58	67285	32.86	ug/L		95
81) tetrachloroethene	13.760	164	25470	7.80	ug/L		95
82) 1,3-dichloropropane	13.786	76	40270	7.39	ug/L		94
83) butyl acetate	13.844	56	23114	7.73	ug/L		88
84) dibromochloromethane	14.017	129	27754	7.41	ug/L		98
85) 1,2-dibromoethane	14.163	107	33201	7.52	ug/L		97
86) n-butyl ether	14.572	57	99388	7.60	ug/L		92
87) chlorobenzene	14.614	112	67028	7.46	ug/L		98
88) 1,1,1,2-tetrachloroethane	14.672	131	25849	7.47	ug/L		99
89) ethylbenzene	14.672	91	111143	7.63	ug/L		99
90) m,p-xylene	14.782	106	87276	15.19	ug/L		90
91) o-xylene	15.160	106	46406	7.69	ug/L		95
92) styrene	15.165	104	75906	7.93	ug/L		97

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170989.D
Acq On : 30 Oct 2019 8:52 pm
Operator : brittank
Sample : IC7685-8
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 31 12:06:06 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 08:42:00 2019
Response via : Initial Calibration

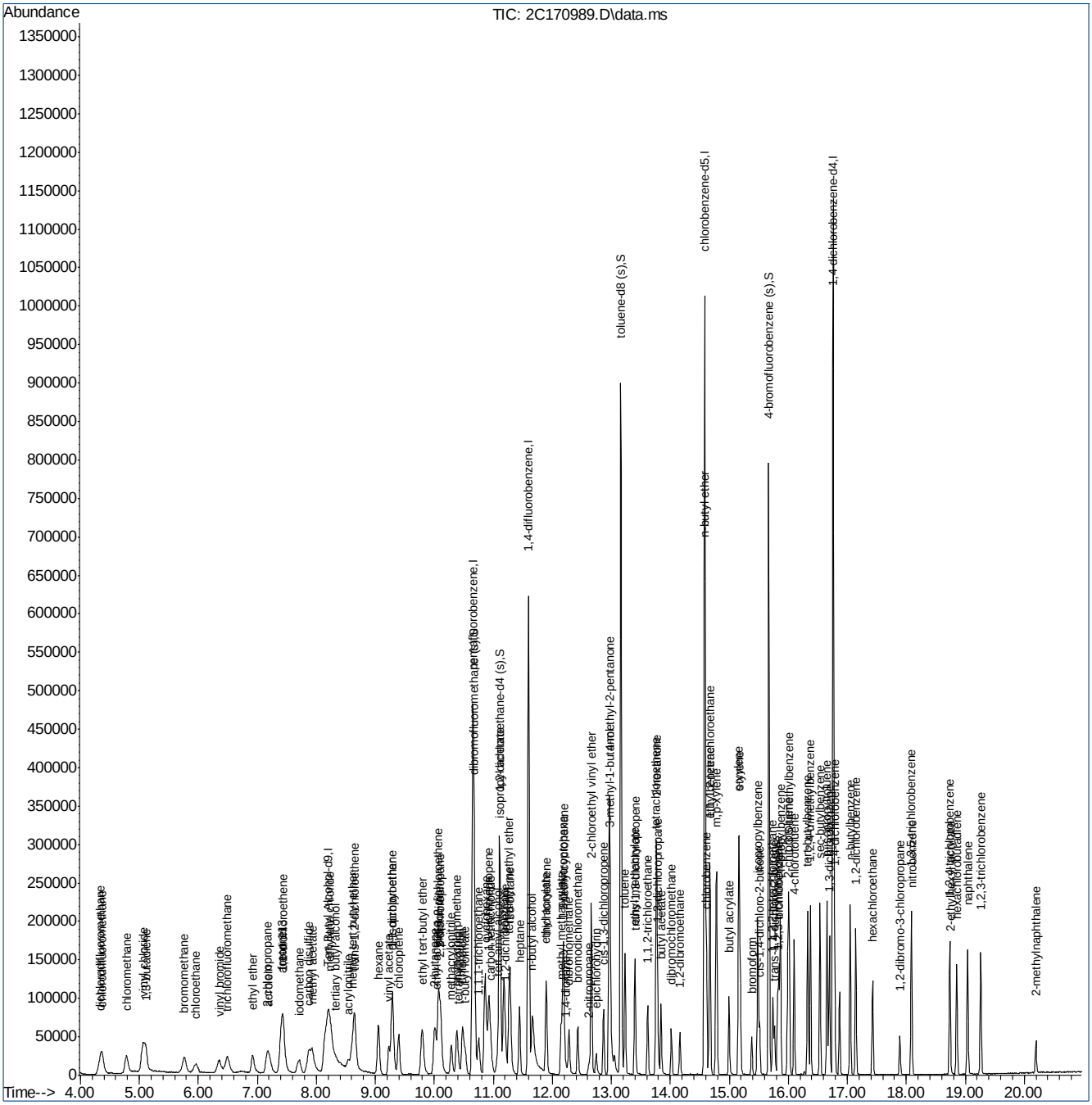
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
93) butyl acrylate	14.992	55	57819	7.87	ug/L		97
94) bromoform	15.385	173	21914	7.60	ug/L		95
95) isopropylbenzene	15.485	105	122168	7.81	ug/L		99
96) cis-1,4-dichloro-2-butene	15.511	75	13693	0.25	ug/L		91
99) bromobenzene	15.841	156	35729	7.63	ug/L		97
100) 1,1,2,2-tetrachloroethane	15.736	83	44795	8.01	ug/L		99
101) trans-1,4-dichloro-2-b...	15.768	88	5237	0.75	ug/L	#	66
102) 1,2,3-trichloropropane	15.820	110	11945	7.78	ug/L		98
103) n-propylbenzene	15.867	91	136865	7.99	ug/L		98
104) 2-chlorotoluene	15.993	126	30329	7.54	ug/L		94
105) 4-chlorotoluene	16.098	91	84949	7.72	ug/L		98
106) 1,3,5-trimethylbenzene	16.014	105	101098	7.97	ug/L		97
107) tert-butylbenzene	16.329	119	88597	7.91	ug/L		99
108) 1,2,4-trimethylbenzene	16.376	105	105290	8.16	ug/L		98
109) sec-butylbenzene	16.533	105	137028	8.06	ug/L		98
110) 1,3-dichlorobenzene	16.696	146	68832	7.85	ug/L		98
111) p-isopropyltoluene	16.654	119	113835	8.02	ug/L		99
112) 1,4-dichlorobenzene	16.785	146	62781	7.37	ug/L		98
113) 1,2-dichlorobenzene	17.142	146	71326	7.76	ug/L		99
114) n-butylbenzene	17.047	92	58061	8.09	ug/L		99
115) 1,2-dibromo-3-chloropr...	17.891	75	10359	7.64	ug/L		91
116) 1,3,5-trichlorobenzene	18.085	180	66093	8.05	ug/L		100
117) nitrobenzene	18.091	77	1499	5.14	ug/L		92
118) 1,2,4-trichlorobenzene	18.741	180	53355	7.74	ug/L		98
119) 2-ethylhexyl acrylate	18.746	55	3433	1.88	ug/L		85
120) hexachlorobutadiene	18.856	225	31095	7.81	ug/L		100
121) naphthalene	19.040	128	126328	7.90	ug/L		99
122) 1,2,3-trichlorobenzene	19.265	180	51268	7.90	ug/L		98
123) hexachloroethane	17.435	201	18708	7.68	ug/L		89
124) 2-methylnaphthalene	20.198	142	19819	2.64	ug/L		95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170989.D
Acq On : 30 Oct 2019 8:52 pm
Operator : brittank
Sample : IC7685-8
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 31 12:06:06 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 08:42:00 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170990.D
Acq On : 30 Oct 2019 9:20 pm
Operator : brittank
Sample : IC7685-20
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 31 12:06:29 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:01:27 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	8.181	65	374743	500.00	ug/L	-0.02
5) pentafluorobenzene	10.656	168	351890	50.00	ug/L	0.00
51) 1,4-difluorobenzene	11.594	114	525814	50.00	ug/L	0.00
74) chlorobenzene-d5	14.583	117	466710	50.00	ug/L	0.00
97) 1,4-dichlorobenzene-d4	16.759	152	267414	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.677	113	161882	50.33	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 100.66%			
52) 1,2-dichloroethane-d4 (s)	11.112	65	193497	49.89	ug/L	0.00
Spiked Amount 50.000	Range 81 - 124		Recovery = 99.78%			
75) toluene-d8 (s)	13.162	98	545347	49.28	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 98.56%			
98) 4-bromofluorobenzene (s)	15.668	95	219084	50.32	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 100.64%			
Target Compounds						Qvalue
3) tertiary butyl alcohol	8.302	59	80372	96.92	ug/L	94
4) 1,4-dioxane	12.229	88	37534	532.54	ug/L	96
6) chlorodifluoromethane	4.380	51	136675	19.80	ug/L	99
7) dichlorodifluoromethane	4.343	85	145090	20.44	ug/L	99
8) chloromethane	4.789	50	149560	18.97	ug/L	99
9) vinyl chloride	5.056	62	138260	19.75	ug/L	98
10) 1,3-butadiene	5.109	54	97708	20.22	ug/L	95
11) bromomethane	5.769	94	87538	18.62	ug/L	96
12) chloroethane	5.958	64	65708	20.07	ug/L	96
13) trichlorofluoromethane	6.498	101	137641	20.18	ug/L	95
14) vinyl bromide	6.356	106	68676	20.26	ug/L	100
15) ethyl ether	6.928	74	44810	20.51	ug/L	93
16) 2-chloropropane	7.174	43	152123	19.26	ug/L	98
17) acrolein	7.180	56	23030	21.48	ug/L	99
18) freon 113	7.431	151	69693	19.21	ug/L	98
19) 1,1-dichloroethene	7.431	96	76840	19.43	ug/L	97
20) acetone	7.416	58	46697	81.86	ug/L	91
21) iodomethane	7.709	142	119101	19.66	ug/L	99
23) carbon disulfide	7.882	76	217941	19.46	ug/L	98
24) methylene chloride	8.233	84	87555	19.19	ug/L	96
25) methyl acetate	7.935	43	100361	20.13	ug/L	97
26) methyl tert butyl ether	8.621	73	234933	19.55	ug/L	99
27) trans-1,2-dichloroethene	8.653	96	74409	19.52	ug/L	100
28) hexane	9.051	56	54135	19.45	ug/L	99
29) di-isopropyl ether	9.293	45	266781	19.96	ug/L	99
30) 1,1-dichloroethane	9.282	63	130244	19.58	ug/L	96
31) chloroprene	9.397	53	109841	20.16	ug/L	98
32) acrylonitrile	8.538	53	47771	20.57	ug/L	97
33) vinyl acetate	9.230	86	15645	19.84	ug/L	97
34) ethyl tert-butyl ether	9.796	59	240171	20.49	ug/L	98
35) 2-butanone	9.995	72	57315	81.97	ug/L	93
36) ethyl acetate	10.021	45	20629	23.01	ug/L #	68

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170990.D
Acq On : 30 Oct 2019 9:20 pm
Operator : brittank
Sample : IC7685-20
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 31 12:06:29 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:01:27 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
37) 2,2-dichloropropane	10.100	77	97273	19.21	ug/L		94
38) cis-1,2-dichloroethene	10.069	96	79539	19.20	ug/L		95
39) propionitrile	10.074	54	200013	206.26	ug/L		92
40) bromochloromethane	10.378	128	42512	20.44	ug/L		95
41) tetrahydrofuran	10.409	71	16044	19.59	ug/L		95
42) chloroform	10.478	83	130252	18.80	ug/L		97
43) t-butyl formate	10.519	59	61198	20.32	ug/L		98
45) methacrylonitrile	10.284	67	41308	21.22	ug/L		97
46) 1,1,1-trichloroethane	10.755	97	115893	19.79	ug/L		98
47) cyclohexane	10.871	84	109086	19.55	ug/L		97
48) 1,1-dichloropropene	10.923	75	89750	19.10	ug/L		95
49) carbon tetrachloride	10.955	117	93566	19.85	ug/L		95
53) n-butyl alcohol	11.657	56	250507	1079.88	ug/L		96
54) tert-amyl alcohol	11.075	55	34687	104.73	ug/L		99
55) iso-octane	11.285	57	232821	19.66	ug/L		96
56) benzene	11.180	78	270674	19.55	ug/L		99
57) tert-amyl methyl ether	11.269	87	48168	19.79	ug/L		99
58) heptane	11.447	57	49039	19.38	ug/L		99
59) isopropyl acetate	11.096	87	20046	20.67	ug/L	#	93
60) 1,2-dichloroethane	11.201	62	100532	19.33	ug/L		99
61) ethyl acrylate	11.888	55	125116	21.44	ug/L		99
62) trichloroethene	11.904	95	69908	19.57	ug/L		98
63) 2-nitropropane	12.622	41	21984	18.04	ug/L		94
64) 2-chloroethyl vinyl ether	12.659	63	234775	107.48	ug/L		99
65) methyl methacrylate	12.145	100	23737	21.08	ug/L		95
66) 1,2-dichloropropane	12.176	63	72206	19.68	ug/L		95
67) dibromomethane	12.281	93	50680	20.12	ug/L		99
68) methylcyclohexane	12.192	83	122048	20.11	ug/L		96
69) bromodichloromethane	12.433	83	98892	20.52	ug/L		97
70) epichlorohydrin	12.743	57	66742	103.12	ug/L		97
71) cis-1,3-dichloropropene	12.868	75	116259	20.57	ug/L		98
72) 4-methyl-2-pentanone	12.968	58	175201	83.21	ug/L		97
73) 3-methyl-1-butanol	12.973	55	162029	428.49	ug/L		97
76) toluene	13.235	92	157557	19.48	ug/L		97
77) ethyl methacrylate	13.398	69	96176	21.03	ug/L		98
78) trans-1,3-dichloropropene	13.408	75	104439	20.94	ug/L		97
79) 1,1,2-trichloroethane	13.618	83	58865	19.98	ug/L		98
80) 2-hexanone	13.765	58	169581	83.79	ug/L		97
81) tetrachloroethene	13.760	164	61348	19.03	ug/L		97
82) 1,3-dichloropropane	13.786	76	103010	19.47	ug/L		99
83) butyl acetate	13.844	56	59841	20.26	ug/L		98
84) dibromochloromethane	14.017	129	75820	19.92	ug/L		99
85) 1,2-dibromoethane	14.163	107	88994	20.42	ug/L		99
86) n-butyl ether	14.572	57	263415	20.39	ug/L		98
87) chlorobenzene	14.614	112	173696	19.58	ug/L		97
88) 1,1,1,2-tetrachloroethane	14.672	131	67110	19.64	ug/L		98
89) ethylbenzene	14.672	91	283828	19.72	ug/L		99
90) m,p-xylene	14.782	106	220495	38.84	ug/L		99
91) o-xylene	15.160	106	118650	19.90	ug/L		99
92) styrene	15.170	104	192045	20.31	ug/L		93

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170990.D
Acq On : 30 Oct 2019 9:20 pm
Operator : brittank
Sample : IC7685-20
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 31 12:06:29 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:01:27 2019
Response via : Initial Calibration

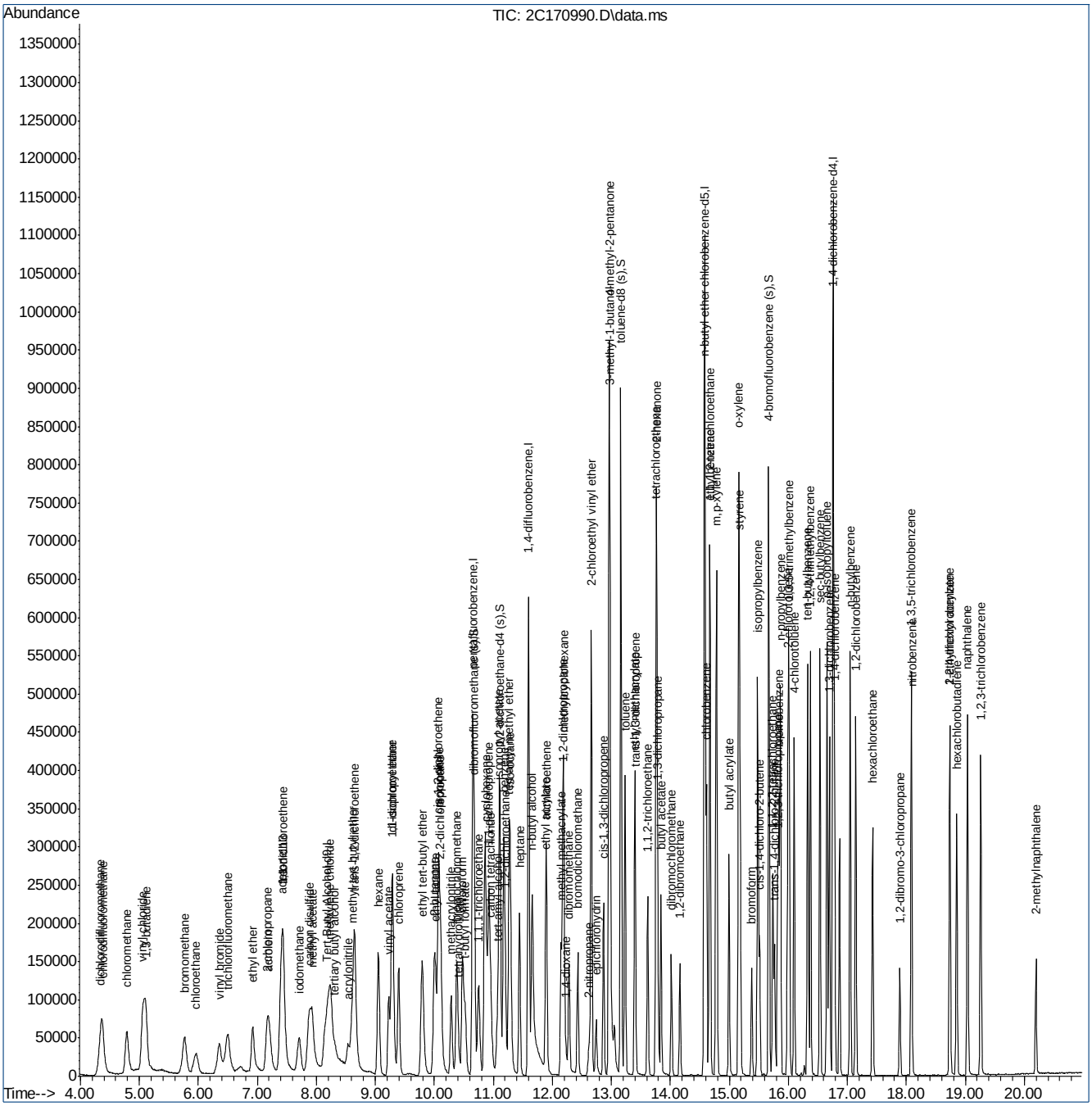
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
93) butyl acrylate	14.992	55	158452	21.35	ug/L	99
94) bromoform	15.380	173	59427	19.94	ug/L	97
95) isopropylbenzene	15.479	105	310823	20.12	ug/L	99
96) cis-1,4-dichloro-2-butene	15.511	75	37094	19.67	ug/L	97
99) bromobenzene	15.841	156	89529	19.50	ug/L	98
100) 1,1,2,2-tetrachloroethane	15.736	83	116644	21.29	ug/L	99
101) trans-1,4-dichloro-2-b...	15.768	88	15106	20.73	ug/L	90
102) 1,2,3-trichloropropane	15.820	110	30274	20.11	ug/L	94
103) n-propylbenzene	15.867	91	337220	20.10	ug/L	100
104) 2-chlorotoluene	15.993	126	77699	19.68	ug/L	99
105) 4-chlorotoluene	16.098	91	214320	19.85	ug/L	99
106) 1,3,5-trimethylbenzene	16.014	105	251959	20.27	ug/L	99
107) tert-butylbenzene	16.329	119	226163	20.59	ug/L	98
108) 1,2,4-trimethylbenzene	16.376	105	259598	20.52	ug/L	97
109) sec-butylbenzene	16.533	105	344609	20.67	ug/L	99
110) 1,3-dichlorobenzene	16.696	146	166679	19.39	ug/L	100
111) p-isopropyltoluene	16.654	119	291803	20.98	ug/L	98
112) 1,4-dichlorobenzene	16.785	146	160169	19.19	ug/L	99
113) 1,2-dichlorobenzene	17.141	146	179323	19.91	ug/L	99
114) n-butylbenzene	17.047	92	147824	21.01	ug/L	96
115) 1,2-dibromo-3-chloropr...	17.891	75	28994	20.79	ug/L	97
116) 1,3,5-trichlorobenzene	18.085	180	164837	20.49	ug/L	99
117) nitrobenzene	18.090	77	4336	17.07	ug/L	91
118) 1,2,4-trichlorobenzene	18.741	180	144936	21.43	ug/L	97
119) 2-ethylhexyl acrylate	18.741	55	11646	3.57	ug/L	87
120) hexachlorobutadiene	18.856	225	75545	19.35	ug/L	99
121) naphthalene	19.034	128	361161	21.70	ug/L	99
122) 1,2,3-trichlorobenzene	19.265	180	136688	21.48	ug/L	98
123) hexachloroethane	17.430	201	50359	19.68	ug/L	93
124) 2-methylnaphthalene	20.198	142	71229	9.27	ug/L	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170990.D
Acq On : 30 Oct 2019 9:20 pm
Operator : brittank
Sample : IC7685-20
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 31 12:06:29 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:01:27 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170991.D
Acq On : 30 Oct 2019 9:49 pm
Operator : brittank
Sample : ICC7685-50
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 31 12:07:28 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:01:27 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	8.181	65	339689	500.00	ug/L	-0.02
5) pentafluorobenzene	10.656	168	338413	50.00	ug/L	0.00
51) 1,4-difluorobenzene	11.594	114	516533	50.00	ug/L	0.00
74) chlorobenzene-d5	14.583	117	446163	50.00	ug/L	0.00
97) 1,4-dichlorobenzene-d4	16.759	152	256751	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.677	113	156293	50.52	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 101.04%			
52) 1,2-dichloroethane-d4 (s)	11.112	65	181087	47.53	ug/L	0.00
Spiked Amount 50.000	Range 81 - 124		Recovery = 95.06%			
75) toluene-d8 (s)	13.162	98	534870	50.56	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 101.12%			
98) 4-bromofluorobenzene (s)	15.668	95	215923	51.66	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 103.32%			
Target Compounds						Qvalue
3) tertiary butyl alcohol	8.307	59	185158	246.31	ug/L	100
4) 1,4-dioxane	12.224	88	80694	1263.06	ug/L	100
6) chlorodifluoromethane	4.375	51	344012	51.81	ug/L	100
7) dichlorodifluoromethane	4.338	85	377572	55.30	ug/L	100
8) chloromethane	4.789	50	371851	49.05	ug/L	100
9) vinyl chloride	5.056	62	354404	52.63	ug/L	100
10) 1,3-butadiene	5.104	54	237864	51.19	ug/L	100
11) bromomethane	5.764	94	218587	48.35	ug/L	100
12) chloroethane	5.958	64	162627	51.66	ug/L	100
13) trichlorofluoromethane	6.493	101	347996	53.06	ug/L	100
14) vinyl bromide	6.351	106	176031	53.99	ug/L	100
15) ethyl ether	6.923	74	106241	50.56	ug/L	100
16) 2-chloropropane	7.175	43	374049	49.23	ug/L	100
17) acrolein	7.185	56	55430	53.77	ug/L	100
18) freon 113	7.431	151	170853	48.97	ug/L	100
19) 1,1-dichloroethene	7.431	96	185315	48.73	ug/L	100
20) acetone	7.405	58	111299	202.88	ug/L	100
21) iodomethane	7.704	142	295733	50.76	ug/L	100
23) carbon disulfide	7.877	76	544094	50.52	ug/L	100
24) methylene chloride	8.234	84	208694	47.57	ug/L	100
25) methyl acetate	7.940	43	246075	51.32	ug/L	100
26) methyl tert butyl ether	8.622	73	568071	49.15	ug/L	100
27) trans-1,2-dichloroethene	8.653	96	177018	48.29	ug/L	100
28) hexane	9.052	56	137069	51.20	ug/L	100
29) di-isopropyl ether	9.293	45	636547	49.53	ug/L	100
30) 1,1-dichloroethane	9.288	63	311954	48.76	ug/L	100
31) chloroprene	9.398	53	272136	51.94	ug/L	100
32) acrylonitrile	8.533	53	112667	50.46	ug/L	100
33) vinyl acetate	9.230	86	38418	50.66	ug/L	100
34) ethyl tert-butyl ether	9.796	59	572489	50.80	ug/L	100
35) 2-butanone	9.995	72	134271	199.69	ug/L	100
36) ethyl acetate	10.027	45	45342	52.59	ug/L	97

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170991.D
Acq On : 30 Oct 2019 9:49 pm
Operator : brittank
Sample : ICC7685-50
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 31 12:07:28 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:01:27 2019
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
37)	2,2-dichloropropane	10.100	77	234423	48.14	ug/L	100
38)	cis-1,2-dichloroethene	10.064	96	185716	46.61	ug/L	100
39)	propionitrile	10.079	54	446013	478.26	ug/L	100
40)	bromochloromethane	10.383	128	101982	50.99	ug/L	100
41)	tetrahydrofuran	10.410	71	36614	46.50	ug/L	100
42)	chloroform	10.478	83	311498	46.76	ug/L	100
43)	t-butyl formate	10.520	59	156401	54.01	ug/L	100
45)	methacrylonitrile	10.289	67	100393	53.63	ug/L	100
46)	1,1,1-trichloroethane	10.750	97	287201	51.00	ug/L	100
47)	cyclohexane	10.871	84	272285	50.75	ug/L	100
48)	1,1-dichloropropene	10.929	75	215157	47.61	ug/L	100
49)	carbon tetrachloride	10.955	117	231785	51.12	ug/L	100
53)	n-butyl alcohol	11.657	56	571988	2510.02	ug/L	100
54)	tert-amyl alcohol	11.075	55	74318	228.43	ug/L	100
55)	iso-octane	11.290	57	573347	49.28	ug/L	100
56)	benzene	11.180	78	653867	48.08	ug/L	100
57)	tert-amyl methyl ether	11.269	87	116717	48.82	ug/L	100
58)	heptane	11.448	57	122929	49.47	ug/L	100
59)	isopropyl acetate	11.096	87	46356	48.66	ug/L	100
60)	1,2-dichloroethane	11.207	62	236739	46.34	ug/L	100
61)	ethyl acrylate	11.888	55	297564	51.92	ug/L	100
62)	trichloroethene	11.899	95	169513	48.29	ug/L	100
63)	2-nitropropane	12.622	41	59673	49.86	ug/L	100
64)	2-chloroethyl vinyl ether	12.659	63	560160	261.04	ug/L	100
65)	methyl methacrylate	12.145	100	55945	50.59	ug/L	100
66)	1,2-dichloropropane	12.176	63	170878	47.42	ug/L	100
67)	dibromomethane	12.281	93	123074	49.74	ug/L	100
68)	methylcyclohexane	12.192	83	296569	49.75	ug/L	100
69)	bromodichloromethane	12.433	83	245072	51.75	ug/L	100
70)	epichlorohydrin	12.743	57	158255	248.90	ug/L	100
71)	cis-1,3-dichloropropene	12.869	75	286538	51.62	ug/L	100
72)	4-methyl-2-pentanone	12.968	58	394901	190.92	ug/L	100
73)	3-methyl-1-butanol	12.973	55	357768	963.13	ug/L	100
76)	toluene	13.230	92	388416	50.24	ug/L	100
77)	ethyl methacrylate	13.398	69	231663	52.98	ug/L	100
78)	trans-1,3-dichloropropene	13.409	75	254606	53.41	ug/L	100
79)	1,1,2-trichloroethane	13.613	83	141011	50.07	ug/L	100
80)	2-hexanone	13.765	58	381080	196.96	ug/L	100
81)	tetrachloroethene	13.760	164	146652	47.58	ug/L	100
82)	1,3-dichloropropane	13.786	76	237777	47.02	ug/L	100
83)	butyl acetate	13.844	56	138332	48.98	ug/L	100
84)	dibromochloromethane	14.017	129	194638	53.48	ug/L	100
85)	1,2-dibromoethane	14.164	107	214917	51.60	ug/L	100
86)	n-butyl ether	14.573	57	652165	52.81	ug/L	100
87)	chlorobenzene	14.614	112	417395	49.22	ug/L	100
88)	1,1,1,2-tetrachloroethane	14.672	131	164640	50.40	ug/L	100
89)	ethylbenzene	14.667	91	672854	48.90	ug/L	100
90)	m,p-xylene	14.782	106	536743	98.90	ug/L	100
91)	o-xylene	15.155	106	287543	50.45	ug/L	100
92)	styrene	15.165	104	459489	50.84	ug/L	100

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170991.D
Acq On : 30 Oct 2019 9:49 pm
Operator : brittank
Sample : ICC7685-50
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 31 12:07:28 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:01:27 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
93) butyl acrylate	14.992	55	384271	54.16	ug/L	100
94) bromoform	15.380	173	154295	54.16	ug/L	100
95) isopropylbenzene	15.480	105	750773	50.83	ug/L	100
96) cis-1,4-dichloro-2-butene	15.511	75	93368	51.78	ug/L	100
99) bromobenzene	15.841	156	213148	48.35	ug/L	100
100) 1,1,2,2-tetrachloroethane	15.736	83	277115	52.68	ug/L	100
101) trans-1,4-dichloro-2-b...	15.768	88	37035	52.93	ug/L	100
102) 1,2,3-trichloropropane	15.820	110	70426	48.72	ug/L	100
103) n-propylbenzene	15.868	91	796868	49.46	ug/L	100
104) 2-chlorotoluene	15.993	126	190192	50.17	ug/L	100
105) 4-chlorotoluene	16.098	91	514177	49.61	ug/L	100
106) 1,3,5-trimethylbenzene	16.014	105	597364	50.06	ug/L	100
107) tert-butylbenzene	16.329	119	558679	52.98	ug/L	100
108) 1,2,4-trimethylbenzene	16.376	105	613424	50.51	ug/L	100
109) sec-butylbenzene	16.533	105	838935	52.41	ug/L	100
110) 1,3-dichlorobenzene	16.696	146	387850	46.99	ug/L	100
111) p-isopropyltoluene	16.654	119	705027	52.79	ug/L	100
112) 1,4-dichlorobenzene	16.785	146	383838	47.89	ug/L	100
113) 1,2-dichlorobenzene	17.142	146	418466	48.40	ug/L	100
114) n-butylbenzene	17.047	92	366390	54.25	ug/L	100
115) 1,2-dibromo-3-chloropr...	17.891	75	70916	52.96	ug/L	100
116) 1,3,5-trichlorobenzene	18.085	180	399539	51.72	ug/L	100
117) nitrobenzene	18.085	77	11874	42.96	ug/L	100
118) 1,2,4-trichlorobenzene	18.735	180	356884	54.96	ug/L	100
119) 2-ethylhexyl acrylate	18.746	55	35428	8.74	ug/L	100
120) hexachlorobutadiene	18.856	225	181457	48.41	ug/L	100
121) naphthalene	19.034	128	892685	55.87	ug/L	100
122) 1,2,3-trichlorobenzene	19.260	180	331926	54.32	ug/L	100
123) hexachloroethane	17.430	201	136629	55.60	ug/L	100
124) 2-methylnaphthalene	20.193	142	211599	23.68	ug/L	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

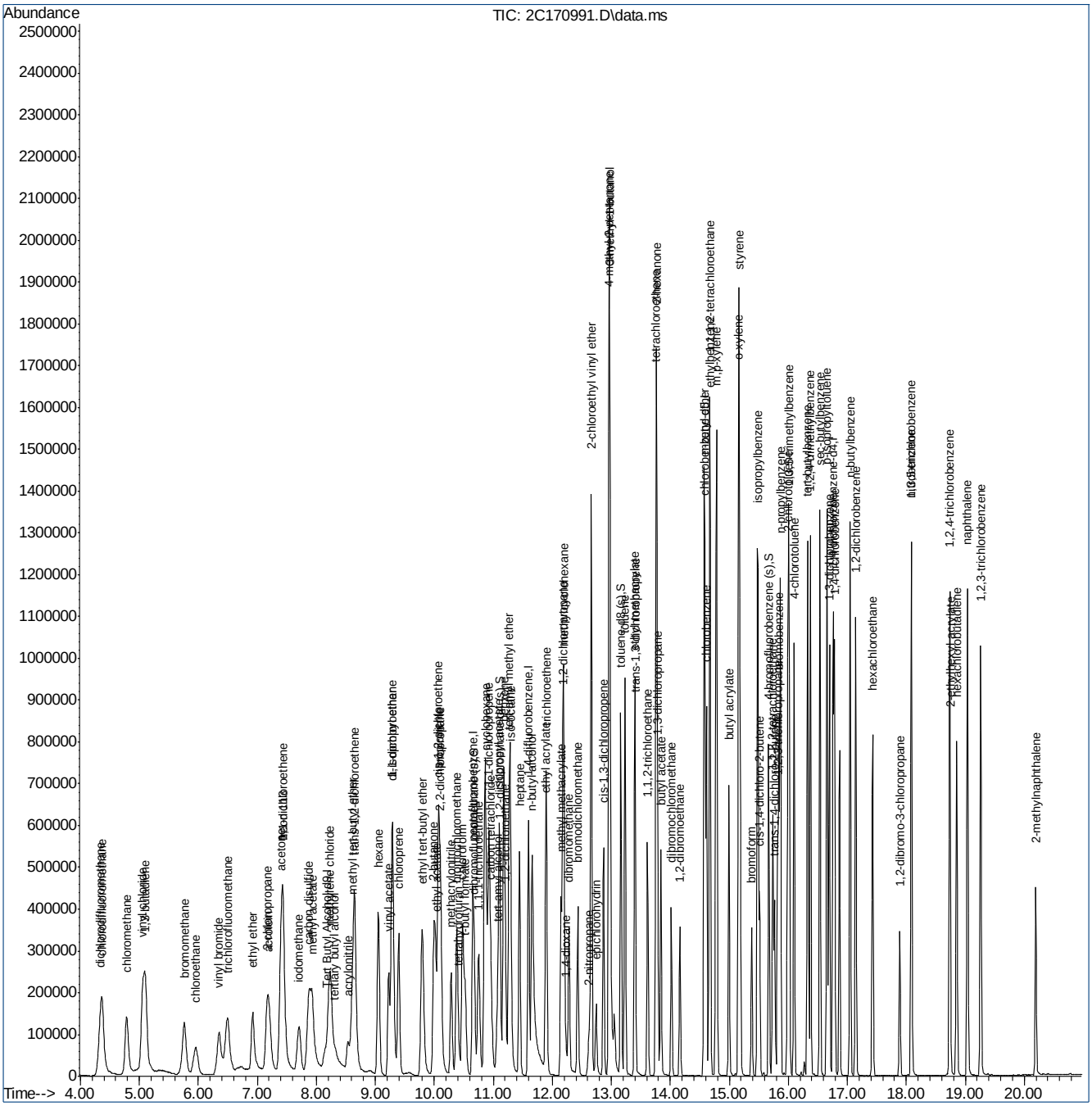
7.6.8

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170991.D
Acq On : 30 Oct 2019 9:49 pm
Operator : brittank
Sample : ICC7685-50
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 31 12:07:28 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:01:27 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170992.D
Acq On : 30 Oct 2019 10:18 pm
Operator : brittank
Sample : IC7685-100
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 31 12:08:14 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:01:27 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	8.192	65	350765	500.00	ug/L	0.00
5) pentafluorobenzene	10.651	168	332679	50.00	ug/L	0.00
51) 1,4-difluorobenzene	11.594	114	507082	50.00	ug/L	0.00
74) chlorobenzene-d5	14.583	117	430380	50.00	ug/L	0.00
97) 1,4-dichlorobenzene-d4	16.759	152	256905	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.677	113	154096	50.67	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 101.34%			
52) 1,2-dichloroethane-d4 (s)	11.112	65	171899	45.96	ug/L	0.00
Spiked Amount 50.000	Range 81 - 124		Recovery = 91.92%			
75) toluene-d8 (s)	13.162	98	536024	52.53	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 105.06%			
98) 4-bromofluorobenzene (s)	15.668	95	215449	51.51	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 103.02%			
Target Compounds						Qvalue
3) tertiary butyl alcohol	8.323	59	397033	511.49	ug/L	96
4) 1,4-dioxane	12.229	88	169331	2566.75	ug/L	97
6) chlorodifluoromethane	4.370	51	658165	100.83	ug/L	99
7) dichlorodifluoromethane	4.333	85	740103	110.26	ug/L	98
8) chloromethane	4.784	50	732805	98.33	ug/L	98
9) vinyl chloride	5.051	62	684367	103.39	ug/L	99
10) 1,3-butadiene	5.104	54	454623	99.52	ug/L	98
11) bromomethane	5.759	94	436941	98.31	ug/L	100
12) chloroethane	5.953	64	327378	105.79	ug/L	97
13) trichlorofluoromethane	6.493	101	688053	106.72	ug/L	98
14) vinyl bromide	6.346	106	354090	110.47	ug/L	99
15) ethyl ether	6.918	74	215484	104.32	ug/L	98
16) 2-chloropropane	7.175	43	736469	98.61	ug/L	100
17) acrolein	7.180	56	114025	112.52	ug/L	84
18) freon 113	7.426	151	334396	97.50	ug/L	98
19) 1,1-dichloroethene	7.431	96	359534	96.18	ug/L	98
20) acetone	7.410	58	221254	410.26	ug/L	96
21) iodomethane	7.704	142	597093	104.24	ug/L	99
23) carbon disulfide	7.877	76	1073874	101.43	ug/L	100
24) methylene chloride	8.239	84	420345	97.46	ug/L	97
25) methyl acetate	7.935	43	475374	100.85	ug/L	98
26) methyl tert butyl ether	8.622	73	1149312	101.15	ug/L	100
27) trans-1,2-dichloroethene	8.648	96	345219	95.80	ug/L	99
28) hexane	9.052	56	265124	100.74	ug/L	97
29) di-isopropyl ether	9.288	45	1241732	98.29	ug/L	98
30) 1,1-dichloroethane	9.282	63	598788	95.21	ug/L	99
31) chloroprene	9.398	53	527544	102.41	ug/L	97
32) acrylonitrile	8.533	53	237304	108.10	ug/L	98
33) vinyl acetate	9.225	86	80060	107.38	ug/L	96
34) ethyl tert-butyl ether	9.796	59	1179259	106.44	ug/L	98
35) 2-butanone	9.995	72	274823	415.76	ug/L	96
36) ethyl acetate	10.022	45	84361	99.53	ug/L #	79

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170992.D
Acq On : 30 Oct 2019 10:18 pm
Operator : brittank
Sample : IC7685-100
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 31 12:08:14 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:01:27 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
37) 2,2-dichloropropane	10.105	77	454989	95.05	ug/L	96
38) cis-1,2-dichloroethene	10.063	96	361985	92.41	ug/L	98
39) propionitrile	10.074	54	885034	965.38	ug/L	93
40) bromochloromethane	10.378	128	200509	101.98	ug/L	98
41) tetrahydrofuran	10.404	71	74079	95.70	ug/L	90
42) chloroform	10.478	83	605604	92.47	ug/L	98
43) t-butyl formate	10.520	59	326075	114.54	ug/L	96
45) methacrylonitrile	10.284	67	205405	111.62	ug/L	99
46) 1,1,1-trichloroethane	10.750	97	575602	103.97	ug/L	99
47) cyclohexane	10.871	84	532109	100.89	ug/L	95
48) 1,1-dichloropropene	10.929	75	413762	93.13	ug/L	99
49) carbon tetrachloride	10.955	117	462852	103.85	ug/L	100
53) n-butyl alcohol	11.657	56	1227272	5485.94	ug/L	97
54) tert-amyl alcohol	11.070	55	153719	481.28	ug/L	95
55) iso-octane	11.290	57	1152924	100.94	ug/L	99
56) benzene	11.175	78	1265463	94.78	ug/L	100
57) tert-amyl methyl ether	11.269	87	238478	101.62	ug/L	95
58) heptane	11.448	57	242175	99.27	ug/L	98
59) isopropyl acetate	11.096	87	96177	102.84	ug/L	96
60) 1,2-dichloroethane	11.206	62	461535	92.02	ug/L	100
61) ethyl acrylate	11.888	55	602513	107.08	ug/L	99
62) trichloroethene	11.899	95	324542	94.19	ug/L	99
63) 2-nitropropane	12.622	41	130617	111.17	ug/L	96
64) 2-chloroethyl vinyl ether	12.659	63	1120136	531.73	ug/L	99
65) methyl methacrylate	12.145	100	118353	109.01	ug/L	97
66) 1,2-dichloropropane	12.176	63	326719	92.36	ug/L	99
67) dibromomethane	12.281	93	244574	100.68	ug/L	98
68) methylcyclohexane	12.192	83	582371	99.52	ug/L	99
69) bromodichloromethane	12.433	83	493481	106.16	ug/L	99
70) epichlorohydrin	12.743	57	331057	530.38	ug/L	97
71) cis-1,3-dichloropropene	12.868	75	577234	105.93	ug/L	100
72) 4-methyl-2-pentanone	12.968	58	786946	387.56	ug/L	95
73) 3-methyl-1-butanol	12.973	55	731536	2006.03	ug/L	97
76) toluene	13.230	92	767088	102.87	ug/L	100
77) ethyl methacrylate	13.398	69	470558	111.56	ug/L	98
78) trans-1,3-dichloropropene	13.409	75	510690	111.05	ug/L	98
79) 1,1,2-trichloroethane	13.613	83	281835	103.75	ug/L	99
80) 2-hexanone	13.765	58	758266	406.28	ug/L	98
81) tetrachloroethene	13.760	164	289651	97.43	ug/L	98
82) 1,3-dichloropropane	13.786	76	467016	95.74	ug/L	98
83) butyl acetate	13.844	56	285721	104.88	ug/L	99
84) dibromochloromethane	14.017	129	409651	116.68	ug/L	99
85) 1,2-dibromoethane	14.164	107	435622	108.42	ug/L	98
86) n-butyl ether	14.572	57	1289326	108.24	ug/L	99
87) chlorobenzene	14.614	112	839169	102.58	ug/L	99
88) 1,1,1,2-tetrachloroethane	14.672	131	329931	104.70	ug/L	99
89) ethylbenzene	14.667	91	1304418	98.28	ug/L	99
90) m,p-xylene	14.782	106	1059865	202.45	ug/L	96
91) o-xylene	15.154	106	573275	104.26	ug/L	99
92) styrene	15.165	104	903878	103.67	ug/L	98

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170992.D
Acq On : 30 Oct 2019 10:18 pm
Operator : brittank
Sample : IC7685-100
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 31 12:08:14 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:01:27 2019
Response via : Initial Calibration

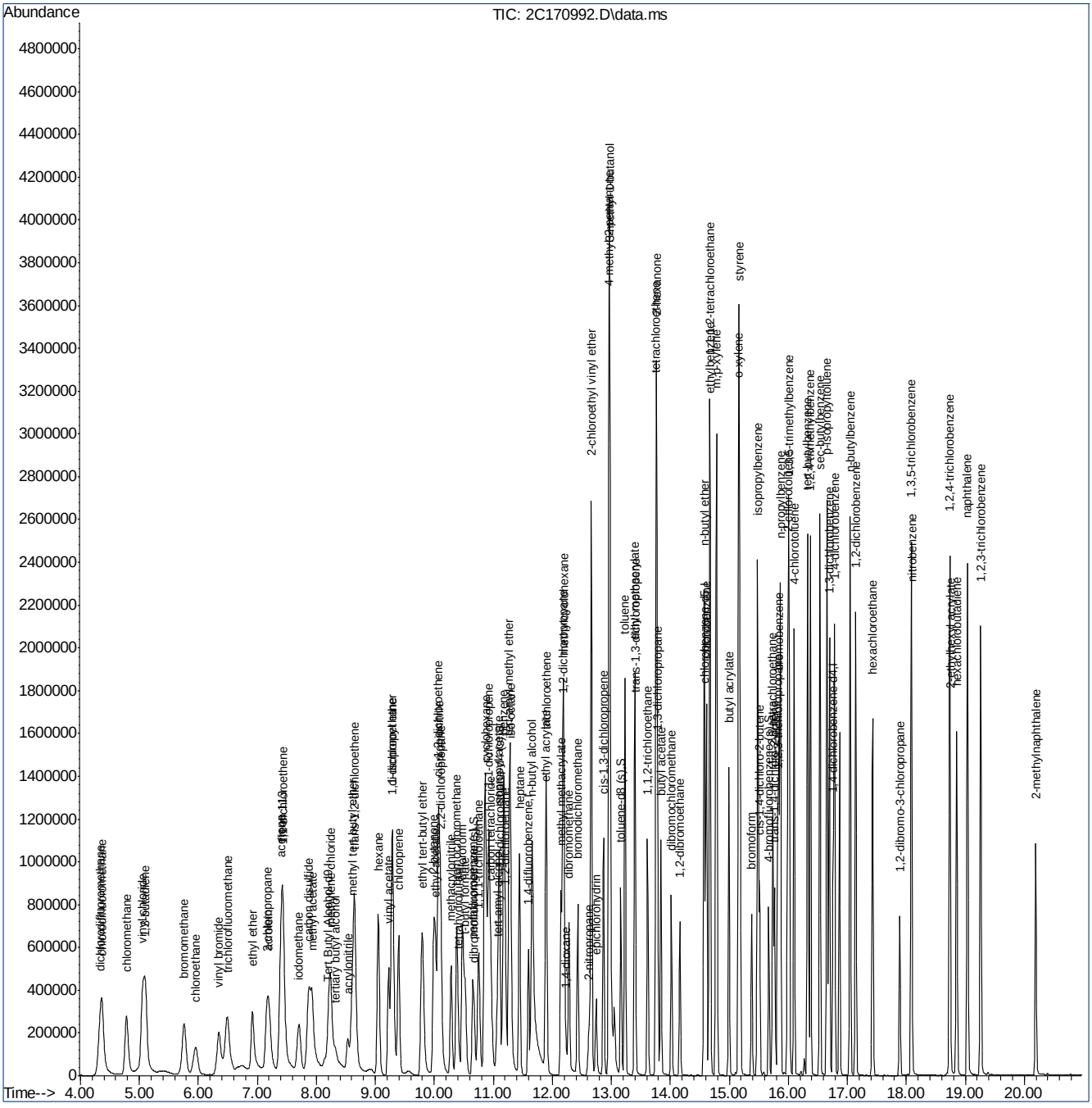
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
93) butyl acrylate	14.992	55	790736	115.54	ug/L	97
94) bromoform	15.380	173	328249	119.44	ug/L	100
95) isopropylbenzene	15.480	105	1460088	102.49	ug/L	98
96) cis-1,4-dichloro-2-butene	15.511	75	193089	111.01	ug/L	98
99) bromobenzene	15.841	156	419110	95.01	ug/L	99
100) 1,1,2,2-tetrachloroethane	15.736	83	555400	105.52	ug/L	99
101) trans-1,4-dichloro-2-b...	15.768	88	76759	109.63	ug/L	96
102) 1,2,3-trichloropropane	15.820	110	141242	97.65	ug/L	94
103) n-propylbenzene	15.868	91	1549882	96.14	ug/L	99
104) 2-chlorotoluene	15.993	126	381495	100.56	ug/L	96
105) 4-chlorotoluene	16.098	91	1027176	99.05	ug/L	99
106) 1,3,5-trimethylbenzene	16.014	105	1164573	97.53	ug/L	98
107) tert-butylbenzene	16.329	119	1110265	105.23	ug/L	100
108) 1,2,4-trimethylbenzene	16.376	105	1205127	99.17	ug/L	100
109) sec-butylbenzene	16.533	105	1661527	103.74	ug/L	99
110) 1,3-dichlorobenzene	16.696	146	766261	92.78	ug/L	99
111) p-isopropyltoluene	16.654	119	1392678	104.21	ug/L	99
112) 1,4-dichlorobenzene	16.785	146	773928	96.49	ug/L	98
113) 1,2-dichlorobenzene	17.142	146	828283	95.74	ug/L	99
114) n-butylbenzene	17.047	92	734544	108.69	ug/L	97
115) 1,2-dibromo-3-chloropr...	17.891	75	156016	116.44	ug/L	99
116) 1,3,5-trichlorobenzene	18.085	180	788644	102.02	ug/L	99
117) nitrobenzene	18.091	77	29302	101.42	ug/L	87
118) 1,2,4-trichlorobenzene	18.735	180	728535	112.13	ug/L	99
119) 2-ethylhexyl acrylate	18.746	55	92501	20.88	ug/L	98
120) hexachlorobutadiene	18.856	225	367463	97.97	ug/L	99
121) naphthalene	19.034	128	1866749	116.77	ug/L	99
122) 1,2,3-trichlorobenzene	19.260	180	683356	111.77	ug/L	99
123) hexachloroethane	17.430	201	290696	118.23	ug/L	98
124) 2-methylnaphthalene	20.193	142	515870	54.26	ug/L	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170992.D
Acq On : 30 Oct 2019 10:18 pm
Operator : brittank
Sample : IC7685-100
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 31 12:08:14 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:01:27 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170993.D
Acq On : 30 Oct 2019 10:46 pm
Operator : brittank
Sample : IC7685-200
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Oct 31 12:08:43 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 08:42:00 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Tert Butyl Alcohol-d9	8.197	65	333747	500.00	ug/L		0.00
5) pentafluorobenzene	10.651	168	341356	50.00	ug/L		0.00
51) 1,4-difluorobenzene	11.594	114	531978	50.00	ug/L		0.00
74) chlorobenzene-d5	14.583	117	437200	50.00	ug/L		0.00
97) 1,4-dichlorobenzene-d4	16.759	152	269453	50.00	ug/L		0.00
System Monitoring Compounds							
44) dibromofluoromethane (s)	10.682	113	160254	51.33	ug/L		0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 102.66%				
52) 1,2-dichloroethane-d4 (s)	11.112	65	171992	43.95	ug/L		0.00
Spiked Amount 50.000	Range 81 - 124		Recovery = 87.90%				
75) toluene-d8 (s)	13.162	98	556952	53.72	ug/L		0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 107.44%				
98) 4-bromofluorobenzene (s)	15.668	95	228351	52.08	ug/L		0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 104.16%				
Target Compounds							Qvalue
3) tertiary butyl alcohol	8.333	59	760656	966.87	ug/L		92
4) 1,4-dioxane	12.229	88	318435	7247.68	ug/L	#	76
6) chlorodifluoromethane	4.370	51	1201648	188.03	ug/L		97
7) dichlorodifluoromethane	4.333	85	1379221	200.11	ug/L		97
8) chloromethane	4.784	50	1361798	177.98	ug/L		100
9) vinyl chloride	5.051	62	1270821	187.18	ug/L		97
10) 1,3-butadiene	5.104	54	840112	196.91	ug/L		97
11) bromomethane	5.754	94	831151	191.05	ug/L		100
12) chloroethane	5.953	64	637905	224.95	ug/L		97
13) trichlorofluoromethane	6.488	101	1317363	197.98	ug/L		99
14) vinyl bromide	6.346	106	681388	226.49	ug/L		95
15) ethyl ether	6.923	74	422274	207.16	ug/L		95
16) 2-chloropropane	7.180	43	1385472	200.53	ug/L		98
17) acrolein	7.175	56	210167	238.42	ug/L		87
18) freon 113	7.426	151	633626	190.60	ug/L		98
19) 1,1-dichloroethene	7.431	96	680785	215.44	ug/L		99
20) acetone	7.405	58	411363	856.38	ug/L		99
21) iodomethane	7.704	142	1151393	213.93	ug/L		100
23) carbon disulfide	7.877	76	2056268	210.28	ug/L		99
24) methylene chloride	8.234	84	804832	188.05	ug/L		99
25) methyl acetate	7.935	43	903216	191.10	ug/L		99
26) methyl tert butyl ether	8.622	73	2204209	207.16	ug/L		100
27) trans-1,2-dichloroethene	8.648	96	668240	180.69	ug/L		99
28) hexane	9.046	56	511815	189.55	ug/L		98
29) di-isopropyl ether	9.293	45	2335103	183.51	ug/L		98
30) 1,1-dichloroethane	9.287	63	1147845	177.78	ug/L		99
31) chloroprene	9.398	53	1031677	195.19	ug/L		97
32) acrylonitrile	8.533	53	444129	210.38	ug/L		97
33) vinyl acetate	9.225	86	143378	216.41	ug/L	#	91
34) ethyl tert-butyl ether	9.796	59	2258172	209.82	ug/L		99
35) 2-butanone	9.995	72	519592	787.80	ug/L		97
36) ethyl acetate	10.022	45	157617	188.15	ug/L	#	55

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170993.D
Acq On : 30 Oct 2019 10:46 pm
Operator : brittank
Sample : IC7685-200
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Oct 31 12:08:43 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 08:42:00 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
37) 2,2-dichloropropane	10.105	77	865491	176.11	ug/L	98
38) cis-1,2-dichloroethene	10.063	96	701322	181.77	ug/L	98
39) propionitrile	10.079	54	1593257	1716.85	ug/L	98
40) bromochloromethane	10.383	128	389100	192.76	ug/L	98
41) tetrahydrofuran	10.404	71	138644	152.26	ug/L	96
42) chloroform	10.478	83	1165408	173.34	ug/L	97
43) t-butyl formate	10.520	59	604821	219.21	ug/L	96
45) methacrylonitrile	10.289	67	395627	209.50	ug/L	97
46) 1,1,1-trichloroethane	10.756	97	1115749	196.31	ug/L	98
47) cyclohexane	10.871	84	993997	183.58	ug/L	99
48) 1,1-dichloropropene	10.929	75	803066	176.18	ug/L	97
49) carbon tetrachloride	10.960	117	903530	197.45	ug/L	99
53) n-butyl alcohol	11.663	56	2233858	10598.38	ug/L	94
54) tert-amyl alcohol	11.075	55	277777	766.69	ug/L	94
55) iso-octane	11.290	57	2212118	184.55	ug/L	99
56) benzene	11.180	78	2445183	174.57	ug/L	98
57) tert-amyl methyl ether	11.275	87	467660	188.46	ug/L	97
58) heptane	11.448	57	474563	191.69	ug/L	98
59) isopropyl acetate	11.102	87	186731	192.61	ug/L	98
60) 1,2-dichloroethane	11.206	62	883885	150.57	ug/L	98
61) ethyl acrylate	11.888	55	1122171	201.90	ug/L	100
62) trichloroethene	11.899	95	629782	174.17	ug/L	98
63) 2-nitropropane	12.622	41	266484	226.87	ug/L	98
64) 2-chloroethyl vinyl ether	12.664	63	2131254	966.42	ug/L	97
65) methyl methacrylate	12.145	100	232212	212.80	ug/L	94
66) 1,2-dichloropropane	12.182	63	618831	166.70	ug/L	97
67) dibromomethane	12.281	93	466315	182.93	ug/L	97
68) methylcyclohexane	12.192	83	1121909	182.69	ug/L	97
69) bromodichloromethane	12.433	83	952548	195.26	ug/L	99
70) epichlorohydrin	12.743	57	627038	981.13	ug/L	99
71) cis-1,3-dichloropropene	12.868	75	1111758	194.43	ug/L	98
72) 4-methyl-2-pentanone	12.968	58	1450898	681.42	ug/L	89
73) 3-methyl-1-butanol	12.973	55	1279852	3365.43	ug/L	95
76) toluene	13.236	92	1514429	199.75	ug/L	93
77) ethyl methacrylate	13.398	69	898483	213.72	ug/L	99
78) trans-1,3-dichloropropene	13.409	75	976875	208.97	ug/L	97
79) 1,1,2-trichloroethane	13.618	83	535515	193.88	ug/L	96
80) 2-hexanone	13.770	58	1381387	728.53	ug/L	94
81) tetrachloroethene	13.760	164	560388	185.39	ug/L	99
82) 1,3-dichloropropane	13.786	76	905014	179.49	ug/L	100
83) butyl acetate	13.844	56	543875	196.37	ug/L	93
84) dibromochloromethane	14.017	129	805543	232.37	ug/L	98
85) 1,2-dibromoethane	14.164	107	838290	205.21	ug/L	97
86) n-butyl ether	14.572	57	2467252	203.77	ug/L	98
87) chlorobenzene	14.614	112	1642422	197.48	ug/L	99
88) 1,1,1,2-tetrachloroethane	14.677	131	648205	202.31	ug/L	99
89) ethylbenzene	14.672	91	2496613	185.01	ug/L	96
90) m,p-xylene	14.782	106	2109077	396.36	ug/L	91
91) o-xylene	15.160	106	1123104	200.91	ug/L	88
92) styrene	15.170	104	1755012	198.02	ug/L	92

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170993.D
Acq On : 30 Oct 2019 10:46 pm
Operator : brittank
Sample : IC7685-200
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Oct 31 12:08:43 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 08:42:00 2019
Response via : Initial Calibration

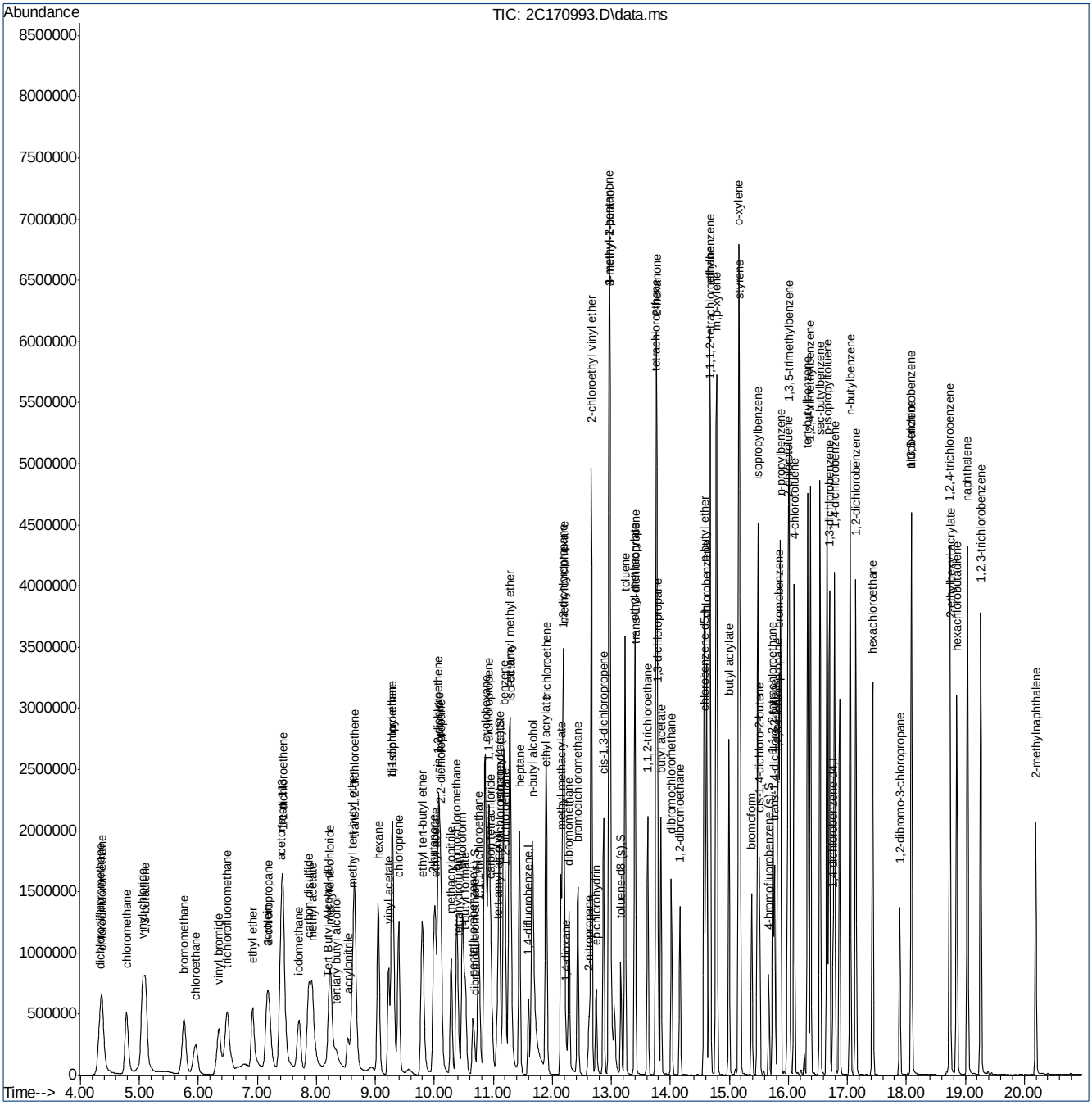
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
93) butyl acrylate	14.992	55	1505885	221.39	ug/L	97
94) bromoform	15.380	173	655247	245.31	ug/L	99
95) isopropylbenzene	15.485	105	2779275	191.88	ug/L	97
96) cis-1,4-dichloro-2-butene	15.511	75	382409	7.57	ug/L	98
99) bromobenzene	15.841	156	809763	175.00	ug/L	99
100) 1,1,2,2-tetrachloroethane	15.736	83	1030902	186.73	ug/L	97
101) trans-1,4-dichloro-2-b...	15.768	88	153373	22.20	ug/L	94
102) 1,2,3-trichloropropane	15.820	110	271098	178.84	ug/L	99
103) n-propylbenzene	15.868	91	3000010	177.43	ug/L	97
104) 2-chlorotoluene	15.993	126	761267	191.65	ug/L	94
105) 4-chlorotoluene	16.098	91	1995639	183.57	ug/L	98
106) 1,3,5-trimethylbenzene	16.014	105	2243916	179.15	ug/L	97
107) tert-butylbenzene	16.329	119	2154151	194.79	ug/L	98
108) 1,2,4-trimethylbenzene	16.376	105	2315252	181.70	ug/L	96
109) sec-butylbenzene	16.533	105	3188676	189.81	ug/L	98
110) 1,3-dichlorobenzene	16.696	146	1484243	171.33	ug/L	96
111) p-isopropyltoluene	16.659	119	2684843	191.53	ug/L	97
112) 1,4-dichlorobenzene	16.785	146	1524353	181.19	ug/L	97
113) 1,2-dichlorobenzene	17.142	146	1565514	172.56	ug/L	97
114) n-butylbenzene	17.047	92	1420356	200.37	ug/L	94
115) 1,2-dibromo-3-chloropr...	17.891	75	291431	217.60	ug/L	98
116) 1,3,5-trichlorobenzene	18.085	180	1454494	179.43	ug/L	97
117) nitrobenzene	18.085	77	63953	214.15	ug/L	95
118) 1,2,4-trichlorobenzene	18.741	180	1332442	195.68	ug/L	98
119) 2-ethylhexyl acrylate	18.746	55	193886	40.67	ug/L	96
120) hexachlorobutadiene	18.856	225	698046	177.45	ug/L	100
121) naphthalene	19.034	128	3424094	216.68	ug/L	99
122) 1,2,3-trichlorobenzene	19.265	180	1253817	195.61	ug/L	97
123) hexachloroethane	17.435	201	595837	247.62	ug/L	93
124) 2-methylnaphthalene	20.193	142	992475	100.67	ug/L	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170993.D
Acq On : 30 Oct 2019 10:46 pm
Operator : brittank
Sample : IC7685-200
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Oct 31 12:08:43 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 08:42:00 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170996.D
Acq On : 31 Oct 2019 12:12 am
Operator : brittank
Sample : ICV7685-50
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Oct 31 12:17:38 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Tert Butyl Alcohol-d9	8.181	65	375746	500.00	ug/L		-0.02
5) pentafluorobenzene	10.651	168	344000	50.00	ug/L		0.00
51) 1,4-difluorobenzene	11.594	114	515254	50.00	ug/L		0.00
74) chlorobenzene-d5	14.583	117	445989	50.00	ug/L		0.00
97) 1,4-dichlorobenzene-d4	16.759	152	257916	50.00	ug/L		0.00
System Monitoring Compounds							
44) dibromofluoromethane (s)	10.682	113	159771	50.81	ug/L		0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 101.62%				
52) 1,2-dichloroethane-d4 (s)	11.112	65	183228	48.21	ug/L		0.00
Spiked Amount 50.000	Range 81 - 124		Recovery = 96.42%				
75) toluene-d8 (s)	13.162	98	534504	50.55	ug/L		0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 101.10%				
98) 4-bromofluorobenzene (s)	15.668	95	217889	51.86	ug/L		0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 103.72%				
Target Compounds							Qvalue
3) tertiary butyl alcohol	8.312	59	204608	246.07	ug/L		97
4) 1,4-dioxane	12.223	88	86697	1226.80	ug/L	#	76
6) chlorodifluoromethane	4.380	51	302996	44.25	ug/L		99
7) dichlorodifluoromethane	4.338	85	302288	43.55	ug/L		99
8) chloromethane	4.784	50	313170	40.64	ug/L		99
9) vinyl chloride	5.056	62	293691	42.91	ug/L		98
10) 1,3-butadiene	5.098	54	231563	47.88	ug/L		97
11) bromomethane	5.764	94	246938	53.77	ug/L		99
12) chloroethane	5.953	64	140495	42.34	ug/L		96
13) trichlorofluoromethane	6.493	101	341150	49.88	ug/L		99
14) vinyl bromide	6.351	106	176034	51.51	ug/L		97
15) ethyl ether	6.923	74	107273	50.22	ug/L		98
16) 2-chloropropane	7.180	43	368297	47.69	ug/L		97
17) acrolein	7.180	56	43060	40.86	ug/L		91
18) freon 113	7.426	151	166079	46.83	ug/L		98
19) 1,1-dichloroethene	7.431	96	170810	44.19	ug/L		97
21) iodomethane	7.709	142	375074	63.33	ug/L		100
23) carbon disulfide	7.877	76	613099	56.50	ug/L		99
24) methylene chloride	8.234	84	210198	47.13	ug/L		96
25) methyl acetate	7.940	43	239055	48.93	ug/L		99
26) methyl tert butyl ether	8.621	73	1138232	96.88	ug/L		98
27) trans-1,2-dichloroethene	8.653	96	169292	45.43	ug/L		99
28) hexane	9.051	56	127391	46.81	ug/L		98
29) di-isopropyl ether	9.293	45	611935	46.84	ug/L		98
30) 1,1-dichloroethane	9.287	63	315295	48.48	ug/L		97
31) chloroprene	9.397	53	271328	50.94	ug/L		99
33) vinyl acetate	9.230	86	33480	43.43	ug/L	#	90
34) ethyl tert-butyl ether	9.796	59	606525	52.85	ug/L		98
35) 2-butanone	9.990	72	152628	223.30	ug/L		96
36) ethyl acetate	10.016	45	43378	48.11	ug/L	#	10
37) 2,2-dichloropropane	10.100	77	225568	45.57	ug/L		95
38) cis-1,2-dichloroethene	10.063	96	183664	45.34	ug/L		96

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170996.D
Acq On : 31 Oct 2019 12:12 am
Operator : brittank
Sample : ICV7685-50
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Oct 31 12:17:38 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39) propionitrile	10.079	54	480218	506.57	ug/L		100
40) bromochloromethane	10.383	128	104978	50.30	ug/L		95
41) tetrahydrofuran	10.404	71	40354	52.24	ug/L		94
42) chloroform	10.478	83	314896	46.50	ug/L		99
43) t-butyl formate	10.519	59	113639	38.60	ug/L		99
45) methacrylonitrile	10.289	67	104309	53.73	ug/L		95
46) 1,1,1-trichloroethane	10.750	97	285708	49.91	ug/L		98
47) cyclohexane	10.871	84	268085	48.62	ug/L		94
48) 1,1-dichloropropene	10.928	75	211387	46.01	ug/L		99
49) carbon tetrachloride	10.960	117	235242	51.04	ug/L		99
53) n-butyl alcohol	11.657	56	598115	2627.04	ug/L		98
54) tert-amyl alcohol	11.070	55	80336	247.97	ug/L		96
55) iso-octane	11.285	57	670541	57.78	ug/L		99
56) benzene	11.175	78	637226	46.97	ug/L		99
57) tert-amyl methyl ether	11.274	87	117137	48.62	ug/L		95
58) heptane	11.447	57	135171	54.53	ug/L		99
59) isopropyl acetate	11.101	87	44868	47.21	ug/L	#	82
60) 1,2-dichloroethane	11.206	62	233388	45.79	ug/L		99
61) ethyl acrylate	11.888	55	298143	51.50	ug/L		98
62) trichloroethene	11.904	95	168698	48.18	ug/L		97
63) 2-nitropropane	12.622	41	65794	55.11	ug/L		98
64) 2-chloroethyl vinyl ether	12.659	63	592111	276.38	ug/L		100
65) methyl methacrylate	12.145	100	55754	50.54	ug/L		97
66) 1,2-dichloropropane	12.176	63	161262	44.86	ug/L		98
67) dibromomethane	12.281	93	120187	48.69	ug/L		98
68) methylcyclohexane	12.192	83	282897	47.58	ug/L		99
69) bromodichloromethane	12.433	83	236559	50.08	ug/L		100
70) epichlorohydrin	12.743	57	174457	275.06	ug/L		99
71) cis-1,3-dichloropropene	12.868	75	281296	50.80	ug/L		99
72) 4-methyl-2-pentanone	12.968	58	409087	198.27	ug/L		98
73) 3-methyl-1-butanol	12.973	55	374427	1008.50	ug/L		100
76) toluene	13.230	92	378378	48.96	ug/L		98
77) ethyl methacrylate	13.398	69	238393	54.54	ug/L		98
78) trans-1,3-dichloropropene	13.408	75	255194	53.55	ug/L		99
79) 1,1,2-trichloroethane	13.613	83	139879	49.69	ug/L		99
80) 2-hexanone	13.765	58	394832	204.15	ug/L		98
82) 1,3-dichloropropane	13.786	76	232238	45.94	ug/L		99
83) butyl acetate	13.844	56	137773	48.95	ug/L		95
84) dibromochloromethane	14.017	129	201202	55.30	ug/L		97
85) 1,2-dibromoethane	14.163	107	215473	51.75	ug/L		99
86) n-butyl ether	14.572	57	648761	52.53	ug/L		99
87) chlorobenzene	14.614	112	419839	49.53	ug/L		98
88) 1,1,1,2-tetrachloroethane	14.672	131	165157	50.58	ug/L		99
89) ethylbenzene	14.667	91	656522	47.73	ug/L		100
90) m,p-xylene	14.782	106	524720	96.72	ug/L		100
91) o-xylene	15.154	106	283930	49.83	ug/L		100
92) styrene	15.165	104	453328	50.18	ug/L		99
93) butyl acrylate	14.992	55	383270	54.04	ug/L		99
94) bromoform	15.380	173	166924	58.62	ug/L		99
95) isopropylbenzene	15.479	105	745170	50.47	ug/L		99

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170996.D
Acq On : 31 Oct 2019 12:12 am
Operator : brittank
Sample : ICV7685-50
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Oct 31 12:17:38 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

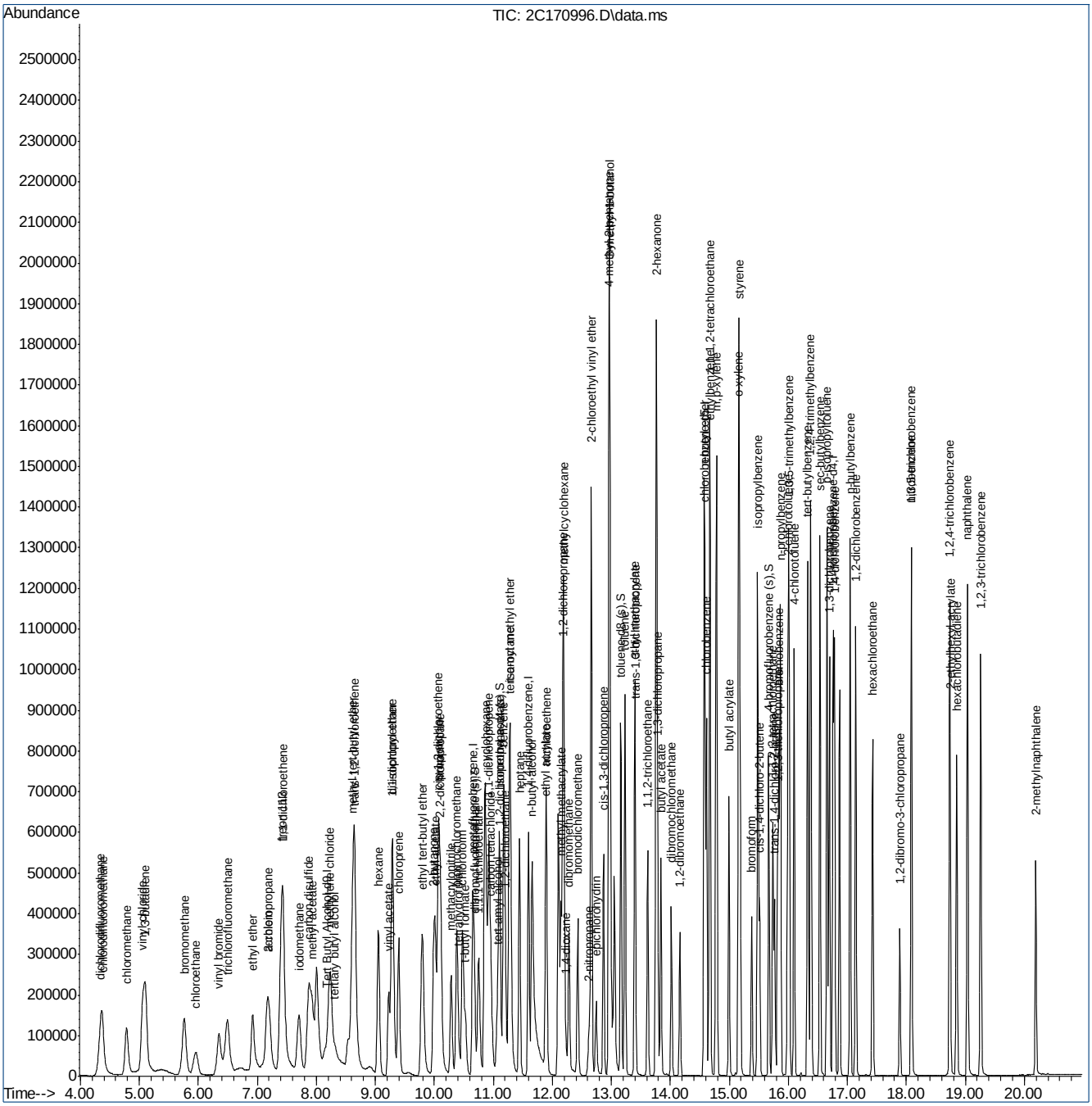
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
96) cis-1,4-dichloro-2-butene	15.511	75	92760	51.46	ug/L	98
99) bromobenzene	15.841	156	211773	47.82	ug/L	96
100) 1,1,2,2-tetrachloroethane	15.736	83	278128	52.64	ug/L	100
101) trans-1,4-dichloro-2-b...	15.768	88	38005	54.07	ug/L	92
102) 1,2,3-trichloropropane	15.820	110	70596	48.61	ug/L	96
103) n-propylbenzene	15.867	91	789810	48.80	ug/L	100
104) 2-chlorotoluene	15.993	126	187183	49.15	ug/L	99
105) 4-chlorotoluene	16.098	91	520952	50.04	ug/L	100
106) 1,3,5-trimethylbenzene	16.014	105	589334	49.16	ug/L	100
107) tert-butylbenzene	16.329	119	553570	52.26	ug/L	99
108) 1,2,4-trimethylbenzene	16.376	105	615969	50.49	ug/L	99
109) sec-butylbenzene	16.533	105	835388	51.96	ug/L	99
110) 1,3-dichlorobenzene	16.696	146	394006	47.52	ug/L	99
111) p-isopropyltoluene	16.654	119	707471	52.73	ug/L	99
112) 1,4-dichlorobenzene	16.785	146	388619	48.26	ug/L	99
113) 1,2-dichlorobenzene	17.141	146	424008	48.82	ug/L	100
114) n-butylbenzene	17.047	92	362360	53.41	ug/L	99
115) 1,2-dibromo-3-chloropr...	17.891	75	72670	54.02	ug/L	98
116) 1,3,5-trichlorobenzene	18.085	180	404863	52.17	ug/L	99
117) nitrobenzene	18.085	77	12562	45.08	ug/L	95
118) 1,2,4-trichlorobenzene	18.735	180	362280	55.54	ug/L	100
119) 2-ethylhexyl acrylate	18.746	55	41206	9.93	ug/L	98
120) hexachlorobutadiene	18.856	225	176219	46.80	ug/L	100
121) naphthalene	19.034	128	932210	58.07	ug/L	99
122) 1,2,3-trichlorobenzene	19.260	180	338098	55.08	ug/L	100
123) hexachloroethane	17.430	201	138665	56.17	ug/L	97
124) 2-methylnaphthalene	20.193	142	243876	26.68	ug/L	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170996.D
Acq On : 31 Oct 2019 12:12 am
Operator : brittank
Sample : ICV7685-50
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Oct 31 12:17:38 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170997.D
Acq On : 31 Oct 2019 12:40 am
Operator : brittank
Sample : ICV7685-50
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Oct 31 12:11:26 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:09:52 2019
Response via : Initial Calibration

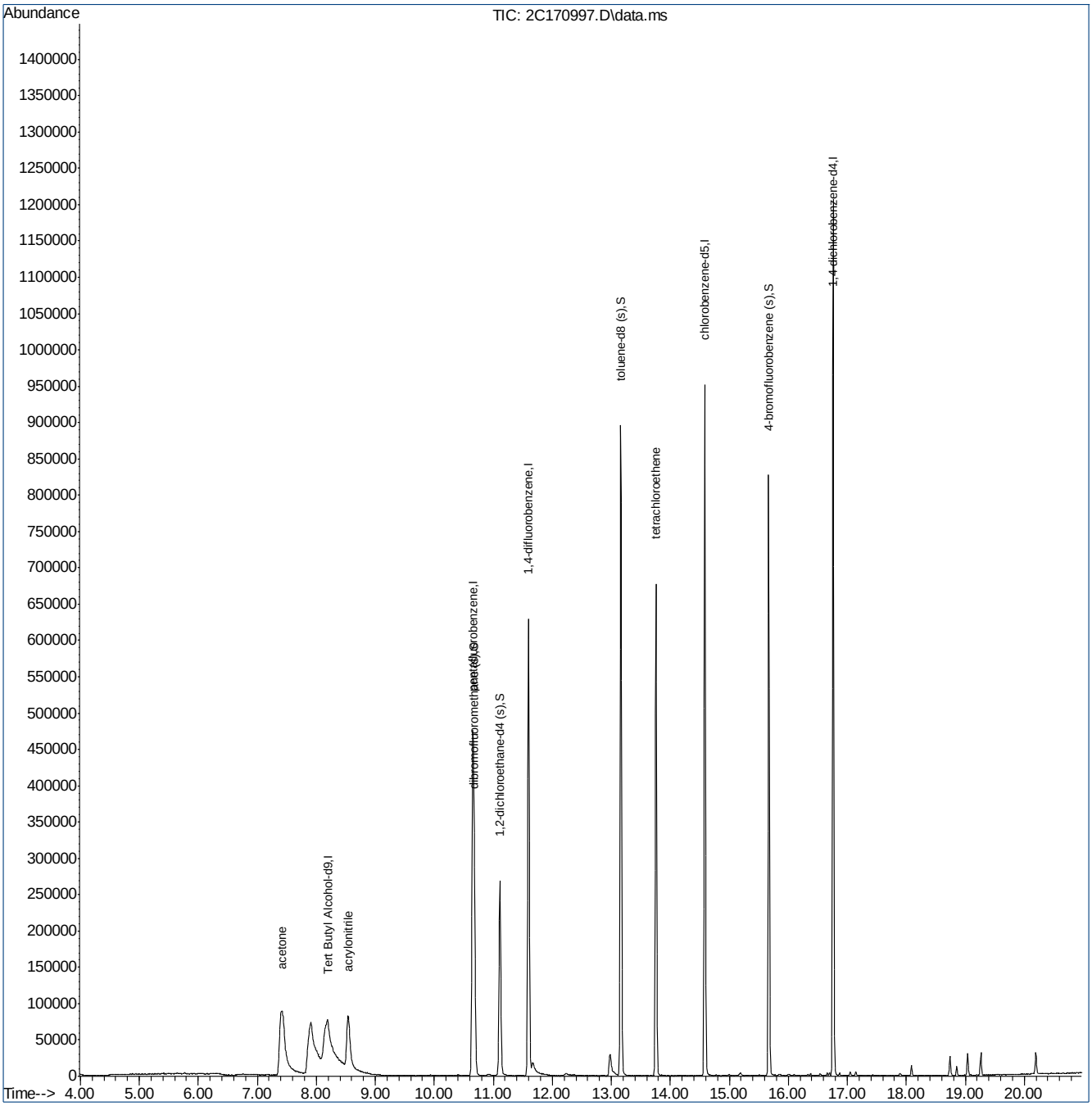
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	8.192	65	387152	500.00	ug/L	0.00
5) pentafluorobenzene	10.651	168	361893	50.00	ug/L	0.00
51) 1,4-difluorobenzene	11.594	114	539955	50.00	ug/L	0.00
74) chlorobenzene-d5	14.583	117	483604	50.00	ug/L	0.00
97) 1,4-dichlorobenzene-d4	16.759	152	289296	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.677	113	164073	49.60	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 99.20%			
52) 1,2-dichloroethane-d4 (s)	11.112	65	208185	52.27	ug/L	0.00
Spiked Amount 50.000	Range 81 - 124		Recovery = 104.54%			
75) toluene-d8 (s)	13.162	98	559793	48.82	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 97.64%			
98) 4-bromofluorobenzene (s)	15.668	95	228879	48.57	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 97.14%			
Target Compounds						Qvalue
20) acetone	7.426	58	119466	203.52	ug/L	95
32) acrylonitrile	8.532	53	122785	51.40	ug/L	99
81) tetrachloroethene	13.760	164	154860	46.36	ug/L	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V2C7685\
Data File : 2C170997.D
Acq On : 31 Oct 2019 12:40 am
Operator : brittank
Sample : ICV7685-50
Misc : MS38525,V2C7685,5,,,,1
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Oct 31 12:11:26 2019
Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:09:52 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172051.d
Acq On : 27 Nov 2019 9:20 pm
Operator : EddieH
Sample : cc7685-50 Inst : Instrument #1
Misc : MS39367,V2C7731,5,,,,1
ALS Vial : 24 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:16:34 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	8.186	65	351466	500.00	ug/L	-0.01
5) pentafluorobenzene	10.651	168	375997	50.00	ug/L	0.00
51) 1,4-difluorobenzene	11.594	114	552086	50.00	ug/L	0.00
74) chlorobenzene-d5	14.583	117	472299	50.00	ug/L	0.00
97) 1,4-dichlorobenzene-d4	16.759	152	270855	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.677	113	168342	48.98	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 97.96%			
52) 1,2-dichloroethane-d4 (s)	11.107	65	175638	43.13	ug/L	0.00
Spiked Amount 50.000	Range 81 - 124		Recovery = 86.26%			
75) toluene-d8 (s)	13.162	98	580950	51.88	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 103.76%			
98) 4-bromofluorobenzene (s)	15.668	95	217642	49.33	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 98.66%			
Target Compounds						Qvalue
3) tertiary butyl alcohol	8.323	59	213878	274.98	ug/L	82
4) 1,4-dioxane	12.229	88	84152	1273.05	ug/L	96
6) chlorodifluoromethane	4.370	51	328262	43.87	ug/L	98
7) dichlorodifluoromethane	4.328	85	316679	41.74	ug/L	99
8) chloromethane	4.784	50	367067	43.58	ug/L	99
9) vinyl chloride	5.046	62	364220	48.68	ug/L	98
10) 1,3-butadiene	5.098	54	275214	52.07	ug/L	98
11) bromomethane	5.759	94	242606	48.33	ug/L	99
12) chloroethane	5.953	64	176387	48.64	ug/L	95
13) trichlorofluoromethane	6.488	101	356512	47.69	ug/L	97
14) vinyl bromide	6.351	106	211722	56.68	ug/L	97
15) ethyl ether	6.918	74	114590	49.08	ug/L	96
16) 2-chloropropane	7.169	43	356181	42.19	ug/L	96
17) acrolein	7.175	56	57612	50.02	ug/L	100
18) freon 113	7.421	151	187139	48.28	ug/L	98
19) 1,1-dichloroethene	7.426	96	211159	49.98	ug/L	91
20) acetone	7.400	58	112775	184.92	ug/L	93
21) iodomethane	7.699	142	343958	53.13	ug/L	96
23) carbon disulfide	7.872	76	607232	51.20	ug/L	97
24) methylene chloride	8.228	84	233098	47.82	ug/L	89
25) methyl acetate	7.935	43	218824	40.98	ug/L	97
26) methyl tert butyl ether	8.622	73	605587	47.16	ug/L	97
27) trans-1,2-dichloroethene	8.648	96	199404	48.96	ug/L	92
28) hexane	9.046	56	137821	46.34	ug/L	92
29) di-isopropyl ether	9.287	45	632022	44.26	ug/L	96
30) 1,1-dichloroethane	9.282	63	328340	46.19	ug/L	98
31) chloroprene	9.398	53	267277	45.91	ug/L	92
32) acrylonitrile	8.527	53	115723	46.63	ug/L	97
33) vinyl acetate	9.225	86	42184	50.06	ug/L #	80
34) ethyl tert-butyl ether	9.791	59	618953	49.35	ug/L	96
35) 2-butanone	9.990	72	144322	193.18	ug/L #	85
36) ethyl acetate	10.022	45	42333	42.96	ug/L #	84
37) 2,2-dichloropropane	10.100	77	256780	47.46	ug/L	90
38) cis-1,2-dichloroethene	10.063	96	209508	47.32	ug/L	93
39) propionitrile	10.069	54	460904	444.82	ug/L	89
40) bromochloromethane	10.378	128	114163	50.05	ug/L	90
41) tetrahydrofuran	10.399	71	38361	45.44	ug/L	98
42) chloroform	10.478	83	328863	44.43	ug/L	98
43) t-butyl formate	10.520	59	169424	52.66	ug/L	98

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172051.d
Acq On : 27 Nov 2019 9:20 pm
Operator : EddieH
Sample : cc7685-50 Inst : Instrument #1
Misc : MS39367,V2C7731,5,,,,1
ALS Vial : 24 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:16:34 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
45)	methacrylonitrile	10.284	67	105929	49.92	ug/L		86
46)	1,1,1-trichloroethane	10.750	97	303437	48.50	ug/L		97
47)	cyclohexane	10.866	84	285383	47.35	ug/L		94
48)	1,1-dichloropropene	10.923	75	231777	46.16	ug/L		98
49)	carbon tetrachloride	10.955	117	254658	50.55	ug/L		98
53)	n-butyl alcohol	11.657	56	570713	2339.45	ug/L		94
54)	tert-amyl alcohol	11.070	55	84280	242.79	ug/L		93
55)	iso-octane	11.285	57	656467	52.79	ug/L		96
56)	benzene	11.175	78	716854	49.31	ug/L		99
57)	tert-amyl methyl ether	11.269	87	136010	52.69	ug/L		93
58)	heptane	11.442	57	131181	49.39	ug/L		98
59)	isopropyl acetate	11.096	87	51038	50.12	ug/L	#	74
60)	1,2-dichloroethane	11.201	62	233595	42.78	ug/L		99
61)	ethyl acrylate	11.888	55	296870	47.86	ug/L		97
62)	trichloroethene	11.899	95	185597	49.47	ug/L		95
63)	2-nitropropane	12.622	41	52737	41.23	ug/L		96
64)	2-chloroethyl vinyl ether	12.659	63	612828	266.97	ug/L		98
65)	methyl methacrylate	12.145	100	61753	52.24	ug/L	#	78
66)	1,2-dichloropropane	12.176	63	178409	46.32	ug/L		98
67)	dibromomethane	12.281	93	127565	48.23	ug/L		92
68)	methylcyclohexane	12.192	83	332623	52.21	ug/L		94
69)	bromodichloromethane	12.433	83	251819	49.75	ug/L		100
70)	epichlorohydrin	12.737	57	158221	232.82	ug/L		98
71)	cis-1,3-dichloropropene	12.868	75	298519	50.32	ug/L		89
72)	4-methyl-2-pentanone	12.963	58	407811	184.47	ug/L		90
73)	3-methyl-1-butanol	12.968	55	338566	851.07	ug/L		96
76)	toluene	13.230	92	424306	51.85	ug/L		97
77)	ethyl methacrylate	13.398	69	237456	51.30	ug/L		91
78)	trans-1,3-dichloropropene	13.403	75	258119	51.15	ug/L		97
79)	1,1,2-trichloroethane	13.613	83	148054	49.66	ug/L		97
80)	2-hexanone	13.765	58	379317	185.20	ug/L		92
81)	tetrachloroethene	13.760	164	170651	52.31	ug/L		97
82)	1,3-dichloropropane	13.786	76	249473	46.60	ug/L		88
83)	butyl acetate	13.844	56	138853	46.59	ug/L		92
84)	dibromochloromethane	14.017	129	208976	54.24	ug/L		98
85)	1,2-dibromoethane	14.164	107	226240	51.31	ug/L		97
86)	n-butyl ether	14.572	57	648479	49.58	ug/L		98
87)	chlorobenzene	14.614	112	470147	52.37	ug/L		96
88)	1,1,1,2-tetrachloroethane	14.672	131	186297	53.87	ug/L		99
89)	ethylbenzene	14.667	91	731530	50.23	ug/L		99
90)	m,p-xylene	14.782	106	590443	102.78	ug/L		96
91)	o-xylene	15.160	106	314677	52.15	ug/L		97
92)	styrene	15.165	104	498532	52.11	ug/L		94
93)	butyl acrylate	14.992	55	379056	50.47	ug/L		99
94)	bromoform	15.380	173	170689	56.60	ug/L		98
95)	isopropylbenzene	15.480	105	819535	52.42	ug/L		98
96)	cis-1,4-dichloro-2-butene	15.511	75	86270	45.20	ug/L		93
99)	bromobenzene	15.841	156	240713	51.76	ug/L		93
100)	1,1,2,2-tetrachloroethane	15.736	83	289650	52.20	ug/L		99
101)	trans-1,4-dichloro-2-b...	15.768	88	33151	44.91	ug/L		91
102)	1,2,3-trichloropropane	15.820	110	72566	47.58	ug/L		95
103)	n-propylbenzene	15.868	91	865915	50.95	ug/L		98
104)	2-chlorotoluene	15.993	126	212097	53.03	ug/L		91
105)	4-chlorotoluene	16.098	91	544375	49.79	ug/L		97
106)	1,3,5-trimethylbenzene	16.014	105	657829	52.25	ug/L		98
107)	tert-butylbenzene	16.329	119	619216	55.66	ug/L		97
108)	1,2,4-trimethylbenzene	16.376	105	671805	52.43	ug/L		98

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172051.d
Acq On : 27 Nov 2019 9:20 pm
Operator : EddieH
Sample : cc7685-50 Inst : Instrument #1
Misc : MS39367,V2C7731,5,,,,1
ALS Vial : 24 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:16:34 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration

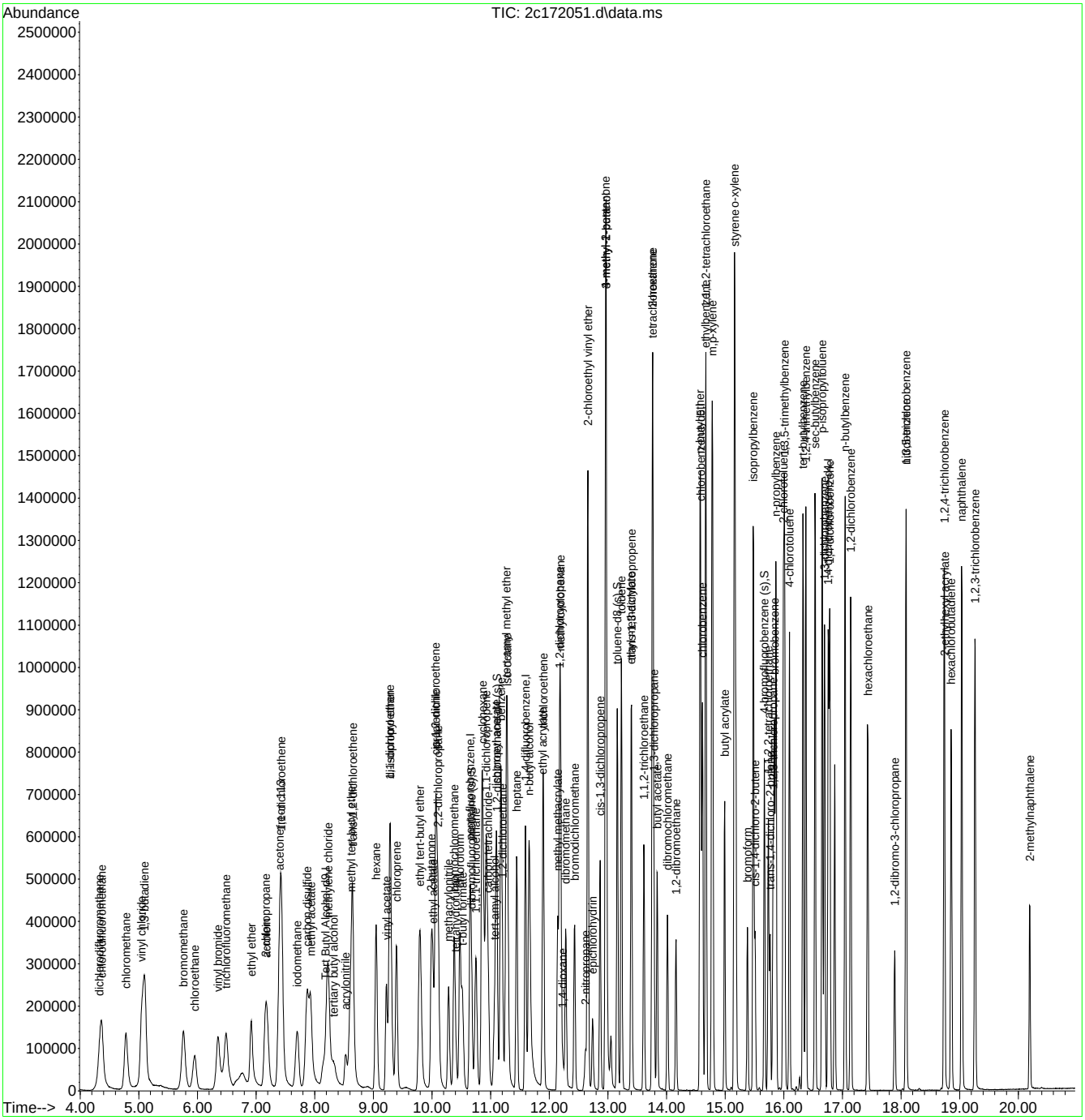
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
109) sec-butylbenzene	16.533	105	912270	54.03	ug/L	99
110) 1,3-dichlorobenzene	16.696	146	440623	50.60	ug/L	98
111) p-isopropyltoluene	16.654	119	774295	54.96	ug/L	99
112) 1,4-dichlorobenzene	16.785	146	444637	52.58	ug/L	99
113) 1,2-dichlorobenzene	17.142	146	472553	51.81	ug/L	99
114) n-butylbenzene	17.047	92	391903	55.00	ug/L	99
115) 1,2-dibromo-3-chloropr...	17.891	75	68885	48.76	ug/L	86
116) 1,3,5-trichlorobenzene	18.085	180	455703	55.91	ug/L	97
117) nitrobenzene	18.085	77	15700	53.06	ug/L	86
118) 1,2,4-trichlorobenzene	18.741	180	413110	60.31	ug/L	99
119) 2-ethylhexyl acrylate	18.746	55	37413	8.74	ug/L	96
120) hexachlorobutadiene	18.856	225	202354	51.17	ug/L	99
121) naphthalene	19.034	128	987556	58.58	ug/L	99
122) 1,2,3-trichlorobenzene	19.265	180	374628	58.12	ug/L	99
123) hexachloroethane	17.435	201	162590	62.72	ug/L	95
124) 2-methylnaphthalene	20.198	142	212130	22.43	ug/L	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\kristelv\DECEMBER\120219\v2c7731\
Data File : 2c172051.d
Acq On : 27 Nov 2019 9:20 pm
Operator : EddieH
Sample : cc7685-50 Inst : Instrument #1
Misc : MS39367,V2C7731,5,,,,1
ALS Vial : 24 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M2C7685.M
Quant Results File: M2C7685.RES
Quant Time: Dec 02 12:16:34 2019
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Thu Oct 31 12:16:57 2019
Response via : Initial Calibration



GCMS Volatile Run Log

Standard / Reagents	Lot #				Column	ZB-624(60mx0.25mmx1.4um)
Standards	ABK: V019-2688-60.43	EC: V019-2688-79.5	Acrolein: V019-2688-69.3 4	Ext. Acetone 3rd sour ce: V019-2688-59	Method	V8260C
Standard Concentration	100-10,000ppm	100ppm	100ppm	400ppm	Init Calib Date	10/30/2019
Expiration Date	11/17/2019	11/05/2019	11/21/2019	11/17/2019		
Standards	Ext. ABK: V019-2688-38.2	Ext. EC: V019-2688-72.1	Ext. Acrolein: V019-2688-39.6	Ext. PA: V019-2688-4 1.1		
Standard Concentration	100-10,000ppm	100ppm	100ppm	100ppm	Analysis Date	10/30/2019
Standards	11/03/2019	10/30/2019	11/03/2019	11/09/2019	Sequence loaded by	Brittany Klimek
					Data processed by	Robert Szot
Internal Surrogate	V019-2688-46				Batch ID	V2C7685
Internal Surrogate Concentration	250/2500ppm				Matrix	AQ
Expiration Date	11/10/2019				Approved By:	KANYAV
pH Paper Lot#	217518		Initial Calibration Method	M2C7685	Approved Date:	11/1/2019 12:59:48 AM

Data File		Sample ID	Bot #	Dil	Workgroup #	Test	Purge Vol (ml)	CL	pH	ALS #	Status	Comments
2C	170983	BFB		NA			5			1	OK	10/30/19; 6:00 pm
2C	170984	IC7685-0.2		NA		AQ Initial Calibration	5			2	OK	0.2uL ABK, EC, Acrolein/100mL DI H2O.
2C	170985	IC7685-0.5		NA		AQ Initial Calibration	5			3	OK	0.5uL ABK, EC, Acrolein/100mL DI H2O.
2C	170986	IC7685-1		NA		AQ Initial Calibration	5			4	OK	1uL ABK, EC, Acrolein/100mL DI H2O.
2C	170987	IC7685-2		NA		AQ Initial Calibration	5			5	OK	2uL ABK, EC, Acrolein/100mL DI H2O.
2C	170988	IC7685-4		NA		AQ Initial Calibration	5			6	OK	4uL ABK, EC, Acrolein/100mL DI H2O.
2C	170989	IC7685-8		NA		AQ Initial Calibration	5			7	OK	8uL ABK, EC, Acrolein/100mL DI H2O.
2C	170990	IC7685-20		NA		AQ Initial Calibration	5			8	OK	20uL ABK, EC, Acrolein/100mL DI H2O.
2C	170991	ICC7685-50		NA		AQ Initial Calibration	5			9	OK	50uL ABK, EC, Acrolein/100mL DI H2O.
2C	170992	IC7685-100		NA		AQ Initial Calibration	5			10	OK	100uL ABK, EC, Acrolein/100mL DI H2O.
2C	170993	IC7685-200		NA		AQ Initial Calibration	5			11	OK	200uL ABK, EC, Acrolein/100mL DI H2O.

Data File		Sample ID	Bot #	Dil	Workgroup #	Test	Purge Vol (ml)	CL	pH	ALS #	Status	Comments
2C	170994	IB		NA			5			12	OK	
2C	170995	IB		NA			5			13	OK	
2C	170996	ICV7685-50		NA		AQ Initial Calibration	5			14	OK	50uL Ext. ABK, EC, Acrolein/100mL DI H2O.
2C	170997	ICV7685-50		NA		AQ Initial Calibration	5			15	OK	50uL Ext. PA, Acetone 3rd source/100mL DI H2O.
2C	170998	IB		NA			5			16	OK	

GCMS Volatile Run Log

Standard / Reagents	Lot #				Column	ZB-624(60mx0.25mmx1.4um)
Standards	ABK: V019-2688-99.43	EC: V019-2688-113.7	Acrolein: V019-2688-105.39		Method	V8260C
Standard Concentration	100-10,000ppm	100ppm	100ppm		Init Calib Date	10/30/2019
Expiration Date	12/12/2019	11/28/2019	12/14/2019			
Internal Surrogate	V019-2688-108				Rough reviewed by	Eddie Huang (12/2/19)
Internal Surrogate Concentration	250/2500ppm				Analysis Date	11/27/2019
Expiration Date	12/15/2019				Sequence loaded by	Devin Gomez
					Data processed by	kristelv
					Batch ID	V2C7731
					Matrix	AQ
Initial Calibration Method	M2C7685				Approved By:	MOHUI
pH Paper Lot#	217518				Approved Date:	12/2/2019 4:46:59 PM

Data File		Sample ID	Bot #	Dil	Workgroup #	Test	Purge Vol (ml)	CL	pH	ALS #	Status	Comments
2C	172051	BFB/CC7685-50		NA			5			1	ok/ok	50uL ABK, EC, Acrolein/100mL. (9:20pm). #118 high.
2C	172052	BS		NA			5			2	ok	50uL ABK, EC, Acrolein/100mL.
2C	172053	BSD		NA			5			3	ok	50uL ABK, EC, Acrolein/100mL.
2C	172054	IB		NA			5			4	ok	
2C	172055	MB		NA			5			5	ok	
2C	172056	JC99215-4	1	5X	MS39494	V8260MCP	10/50		1	6	ok	
2C	172057	JC99215-4MS	1	5X	MS39494	V8260MCP	10/50		1	7	ok	25uL ABK, EC, Acrolein/50mL.
2C	172058	JC99215-4MSD	1	5X	MS39494	V8260MCP	10/50		1	8	ok	25uL ABK, EC, Acrolein/50mL.
2C	172059	IB		NA			5			9	ok	
2C	172060	JC99143-16	1	NA	MS39437	V8260MD+PPTCL	5		1	10	ok	
2C	172061	JC99091-2	1	NA	MS39447	V8260MCP	5		1	11	ok	

Data File		Sample ID	Bot #	Dil	Workgroup #	Test	Purge Vol (ml)	CL	pH	ALS #	Status	Comments
2C	172062	JC99215-1	2	NA	MS39494	V8260MCP	5		1	12	ok	
2C	172063	JC99215-1	2	10X	MS39494	V8260MCP	5/50		1	13	ok	
2C	172064	JC99215-2	2	NA	MS39494	V8260MCP	5		1	14	ok	
2C	172065	JC99215-3	2	NA	MS39494	V8260MCP	5		1	15	ok	
2C	172066	JC98939-1	1	NA	MS39482	V8260SL	5		1	16	ok	
2C	172067	JC99091-1	12	NA	MS39447	V8260MCP	5		1	17	ok	
2C	172068	JC99143-12	2	NA	MS39437	V8260MD+PPTCL	5		1	18	ok	
2C	172069	JC99143-13	2	NA	MS39437	V8260MD+PPTCL	5		1	19	ok/DL	F/D 10X.
2C	172070	JC99143-14	2	20X	MS39437	V8260MD+PPTCL	2.5/50		1	20	ok/RR	O/D RR 1X + combine.
2C	172071	JC99143-15	2	10X	MS39437	V8260MD+PPTCL	5/50		1	21	RR	O/D RR 1X.
2C	172072	JC99127-1	3	NA	MS39412	V8260PPTCL42+	5		1	22	ok	
2C	172073	JC99127-2	2	NA	MS39412	V8260PPTCL42+	5		1	23	ok	
2C	172074	JC99127-3	8	NA	MS39412	V8260PPTCL42+	5		1	24	ok	(8:19am).

ANALYTICAL REPORT

Lab Number:	L1956767
Client:	GEI Consultants 400 Unicorn Park Drive Woburn, MA 01801
ATTN:	Joe Roman
Phone:	(781) 721-4000
Project Name:	TUFTS ST
Project Number:	045163
Report Date:	12/04/19

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0141), DoD (L2474), FL (E87814), IL (200081), LA (85084), ME (MA00030), MD (350), NJ (MA015), NY (11627), NC (685), OH (CL106), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #P330-17-00150), USFWS (Permit #206964).

Six Park Row, Mansfield, MA 02048
508-261-7467 (Fax) -- -- - emccarter@mansfieldma.com

Project Name: TUFTS ST
Project Number: 045163

Lab Number: L1956767
Report Date: 12/04/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1956767-01	045163-13KNOW-SS1	SOIL_VAPOR	SOMERVILLE, MA	11/22/19 09:19	11/25/19

Project Name: TUFTS ST
Project Number: 045163
Lab Number: L1956767
Report Date: 12/04/19

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	N/A
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	NO
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES

A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	YES
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	YES
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	NO

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.

Project Name:	TUFTS ST	**Lab Number:**	L1956767
Project Number:	045163	**Report Date:**	12/04/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	TUFTS ST	**Lab Number:**	L1956767
Project Number:	045163	**Report Date:**	12/04/19

Case Narrative (continued)

MCP Related Narratives

Canisters were released from the laboratory on November 19, 2019. The canister certification data is provided as an addendum.

MCP Volatile Organics in Air

In reference to questions E b/I:

All samples were analyzed for a subset of the MCP compounds per the Chain of Custody.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Christopher J. Anderson

Title: Technical Director/Representative Date: 12/04/19

QC OUTLIER SUMMARY REPORT

Project Name: TUFTS ST
Project Number: 045163

Lab Number: L1956767
Report Date: 12/04/19

Method	Client ID (Native ID)	Lab ID	Parameter	QC Type	Recovery/RPD (%)	QC Limits (%)	Associated Samples	Data Quality Assessment

There are no QC Outliers associated with this report.

AIR

Project Name: TUFTS ST
Project Number: 045163
Lab Number: L1956767
Report Date: 12/04/19

SAMPLE RESULTS

Lab ID: L1956767-01
Client ID: 045163-13KNOW-SS1
Sample Location: SOMERVILLE, MA

Date Collected: 11/22/19 09:19
Date Received: 11/25/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 101,TO-15
Analytical Date: 12/04/19 02:11
Analyst: TS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
MCP Volatile Organics in Air - Mansfield Lab								
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-Difluorobenzene	97		60-140
Bromochloromethane	102		60-140
chlorobenzene-d5	89		60-140

Project Name: TUFTS ST
Project Number: 045163
Lab Number: L1956767
Report Date: 12/04/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 101,TO-15
Analytical Date: 12/03/19 14:38

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
MCP Volatile Organics in Air - Mansfield Lab for sample(s): 01 Batch: WG1316131-4								
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1

Lab Control Sample Analysis

Batch Quality Control

Project Name: TUFTS ST

Project Number: 045163

Lab Number: L1956767

Report Date: 12/04/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics in Air - Mansfield Lab Associated sample(s): 01 Batch: WG1316131-3								
Vinyl chloride	120		-		70-130	-		
Chloroethane	98		-		70-130	-		
1,1-Dichloroethene	121		-		70-130	-		
trans-1,2-Dichloroethene	105		-		70-130	-		
1,1-Dichloroethane	101		-		70-130	-		
cis-1,2-Dichloroethene	108		-		70-130	-		
1,2-Dichloroethane	118		-		70-130	-		
1,1,1-Trichloroethane	129		-		70-130	-		
Trichloroethene	101		-		70-130	-		
1,1,2-Trichloroethane	105		-		70-130	-		
Tetrachloroethene	80		-		70-130	-		
1,1,2,2-Tetrachloroethane	96		-		70-130	-		

Lab Duplicate Analysis
Batch Quality Control

Project Name: TUFTS ST
Project Number: 045163

Lab Number: L1956767
Report Date: 12/04/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
MCP Volatile Organics in Air - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1316131-5 QC Sample: L1956767-01 Client ID: 045163-13KNOW-SS1						
Vinyl chloride	ND	ND	ppbV	NC		25
Chloroethane	ND	ND	ppbV	NC		25
1,1-Dichloroethene	ND	ND	ppbV	NC		25
trans-1,2-Dichloroethene	ND	ND	ppbV	NC		25
1,1-Dichloroethane	ND	ND	ppbV	NC		25
cis-1,2-Dichloroethene	ND	ND	ppbV	NC		25
1,2-Dichloroethane	ND	ND	ppbV	NC		25
1,1,1-Trichloroethane	ND	ND	ppbV	NC		25
Trichloroethene	ND	ND	ppbV	NC		25
1,1,2-Trichloroethane	ND	ND	ppbV	NC		25
Tetrachloroethene	ND	ND	ppbV	NC		25
1,1,2,2-Tetrachloroethane	ND	ND	ppbV	NC		25

Project Name: TUFTS ST

Project Number: 045163

Lab Number: L1956767

Report Date: 12/04/19

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controler Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1956767-01	045163-13KNOW-SS1	0454	Flow 3	11/19/19	307336		-	-	-	Pass	36.0	31.5	13
L1956767-01	045163-13KNOW-SS1	2687	2.7L Can	11/19/19	307336	L1953775-01	Pass	-29.1	-6.1	-	-	-	-

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1953775
Report Date: 12/04/19

Air Canister Certification Results

Lab ID: L1953775-01
Client ID: CAN 1736 SHELF 8
Sample Location:

Date Collected: 11/11/19 16:00
Date Received: 11/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 11/12/19 17:16
Analyst: TS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L1953775

Project Number: CANISTER QC BAT **Report Date:** 12/04/19

Air Canister Certification Results

Lab ID: L1953775-01
Client ID: CAN 1736 SHELF 8
Sample Location:

Date Collected: 11/11/19 16:00
Date Received: 11/12/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
Xylenes, total	ND	0.600	--	ND	0.869	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	1.00	--	ND	1.00	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1953775
Report Date: 12/04/19

Air Canister Certification Results

Lab ID: L1953775-01
Client ID: CAN 1736 SHELF 8
Sample Location:

Date Collected: 11/11/19 16:00
Date Received: 11/12/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1953775
Report Date: 12/04/19

Air Canister Certification Results

Lab ID: L1953775-01
Client ID: CAN 1736 SHELF 8
Sample Location:

Date Collected: 11/11/19 16:00
Date Received: 11/12/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1953775
Report Date: 12/04/19

Air Canister Certification Results

Lab ID: L1953775-01
Client ID: CAN 1736 SHELF 8
Sample Location:

Date Collected: 11/11/19 16:00
Date Received: 11/12/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	87		60-140
Bromochloromethane	93		60-140
chlorobenzene-d5	85		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1953775
Report Date: 12/04/19

Air Canister Certification Results

Lab ID: L1953775-01
Client ID: CAN 1736 SHELF 8
Sample Location:

Date Collected: 11/11/19 16:00
Date Received: 11/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 11/12/19 17:16
Analyst: TS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1953775
Report Date: 12/04/19

Air Canister Certification Results

Lab ID: L1953775-01
Client ID: CAN 1736 SHELF 8
Sample Location:

Date Collected: 11/11/19 16:00
Date Received: 11/12/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1953775
Report Date: 12/04/19

Air Canister Certification Results

Lab ID: L1953775-01
Client ID: CAN 1736 SHELF 8
Sample Location:

Date Collected: 11/11/19 16:00
Date Received: 11/12/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	86		60-140
bromochloromethane	91		60-140
chlorobenzene-d5	86		60-140

Project Name: TUFTS ST
Project Number: 045163

Lab Number: L1956767
Report Date: 12/04/19

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
NA	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1956767-01A	Canister - 2.7 Liter	NA	NA			Y	Absent		MCP-TO15(30)

*Values in parentheses indicate holding time in days

Project Name:	TUFTS ST	**Lab Number:**	L1956767
Project Number:	045163	**Report Date:**	12/04/19

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: Data Usability Report

Project Name:	TUFTS ST	**Lab Number:**	L1956767
Project Number:	045163	**Report Date:**	12/04/19

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

Report Format: Data Usability Report

Project Name:	TUFTS ST	**Lab Number:**	L1956767
Project Number:	045163	**Report Date:**	12/04/19

Data Qualifiers

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: Data Usability Report

Project Name:	TUFTS ST	**Lab Number:**	L1956767
Project Number:	045163	**Report Date:**	12/04/19

REFERENCES

101 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air (EPA/625/R-96/010b:January 1999) with QC Requirements & Performance Standards for the Analysis of TO-15 under the Massachusetts Contingency Plan, WSC-CAM-IXB, July 2010.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

AIR ANALYSIS

PAGE 1 OF 1

ALPHA ANALYTICAL — CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 11/25/19

ALPHA Job #: L1956767

Client Information

Client: GEI Consultants
Address: 400 Unicorn Park Dr.
Woburn MA 01801
Phone: 781-721-4000
Fax:
Email: labdata@geiconsultants.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Tufts Street
Project Location: Somerville, MA
Project #: 045163
Project Manager: J. Roman
ALPHA Quote #:

Turn-Around Time

■ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX
☒ ADEx
Criteria Checker:
(Default based on Regulatory Criteria Indicated)
Other Formats:
☐ EMAIL (standard pdf report)
☐ Additional Deliverables:
Report to: (if different than Project Manager)

Billing Information

■ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed	Program	Res / Comm

Other Project Specific Requirements/Comments:

Project-Specific Target Compound List: ☐

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	COLLECTION End Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	ANALYSIS TO-15	TO-15 SIM	APH (Subset Non-petroleum HCs)	Fixed Gases	Sulfides & Mercaptans by TO-15	☐	Sample Comments (i.e. PID)
1956767-01	045163-13KNOW-SS1	11/22/19	819	919	-29.58	-6.52	SV	MEG	2.7L	2687	0454	X						See analyte list

*SAMPLE MATRIX CODES
AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type

Relinquished By:	Date/Time	Received By:	Date/Time:
Molly Ryan	11/22/19 1500	GEI Field Room	11/22/19 1500
GEI Fridge	11/25/19 1402	[illegible]	11/25/19 1402
[illegible] AAC	11/25 1905	AAC [illegible]	11/25 1402
[illegible]	11/25/19 2000	[illegible]	11/25/19 1905
		[illegible]	11/25/19 2109

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Form No: 101-02 Rev: (25-Sep-15)

- Vinyl chloride
- Chloroethane
- 1,1-Dichloroethene
- trans-1,2-Dichloroethene
- 1,1-Dichloroethane
- cis-1,2-Dichloroethene
- 1,2-Dichloroethane
- 1,1,1-Trichloroethane
- Trichloroethene
- 1,1,2-Trichloroethane
- Tetrachloroethene
- 1,1,2,2-Tetrachloroethane

ANALYTICAL REPORT

Lab Number:	L1956770
Client:	GEI Consultants 400 Unicorn Park Drive Woburn, MA 01801
ATTN:	Joe Roman
Phone:	(781) 721-4000
Project Name:	TUFTS ST
Project Number:	045163
Report Date:	12/03/19

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0141), DoD (L2474), FL (E87814), IL (200081), LA (85084), ME (MA00030), MD (350), NJ (MA015), NY (11627), NC (685), OH (CL106), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #P330-17-00150), USFWS (Permit #206964).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: TUFTS ST
Project Number: 045163

Lab Number: L1956770
Report Date: 12/03/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1956770-01	045163-13KNOW-B	AIR	SOMERVILLE, MA	11/22/19 08:05	11/25/19
L1956770-02	045163-13KNOW-1	AIR	SOMERVILLE, MA	11/22/19 08:01	11/25/19

Project Name: TUFTS ST
Project Number: 045163
Lab Number: L1956770
Report Date: 12/03/19

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	N/A
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	NO
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES

A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	YES
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	YES
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	NO

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.

Project Name:	TUFTS ST	**Lab Number:**	L1956770
Project Number:	045163	**Report Date:**	12/03/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	TUFTS ST	**Lab Number:**	L1956770
Project Number:	045163	**Report Date:**	12/03/19

Case Narrative (continued)

MCP Related Narratives

Canisters were released from the laboratory on November 19, 2019. The canister certification data is provided as an addendum.

MCP Volatile Organics in Air

In reference to questions E b/I:

All samples were analyzed for a subset of the MCP compounds per the Chain of Custody.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Christopher J. Anderson

Title: Technical Director/Representative Date: 12/03/19

QC OUTLIER SUMMARY REPORT

Project Name: TUFTS ST
Project Number: 045163

Lab Number: L1956770
Report Date: 12/03/19

Method	Client ID (Native ID)	Lab ID	Parameter	QC Type	Recovery/RPD (%)	QC Limits (%)	Associated Samples	Data Quality Assessment

There are no QC Outliers associated with this report.

AIR

Project Name: TUFTS ST
Project Number: 045163
Lab Number: L1956770
Report Date: 12/03/19

SAMPLE RESULTS

Lab ID: L1956770-01
Client ID: 045163-13KNOW-B
Sample Location: SOMERVILLE, MA

Date Collected: 11/22/19 08:05
Date Received: 11/25/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 101,TO-15-SIM
Analytical Date: 12/01/19 00:45
Analyst: TS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
MCP Volatile Organics in Air by SIM - Mansfield Lab								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Tetrachloroethene	0.451	0.020	--	3.06	0.136	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-difluorobenzene	85		60-140
bromochloromethane	88		60-140
chlorobenzene-d5	89		60-140

Project Name: TUFTS ST
Project Number: 045163

Lab Number: L1956770
Report Date: 12/03/19

SAMPLE RESULTS

Lab ID: L1956770-02
Client ID: 045163-13KNOW-1
Sample Location: SOMERVILLE, MA

Date Collected: 11/22/19 08:01
Date Received: 11/25/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 101,TO-15-SIM
Analytical Date: 12/01/19 01:18
Analyst: TS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
MCP Volatile Organics in Air by SIM - Mansfield Lab								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,2-Dichloroethane	0.033	0.020	--	0.134	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Tetrachloroethene	0.052	0.020	--	0.353	0.136	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-difluorobenzene	87		60-140
bromochloromethane	89		60-140
chlorobenzene-d5	93		60-140

Project Name: TUFTS ST
Project Number: 045163
Lab Number: L1956770
Report Date: 12/03/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 101,TO-15-SIM
Analytical Date: 11/30/19 15:50

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
MCP Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01-02 Batch: WG1315212-4								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1

Lab Control Sample Analysis
Batch Quality Control

Project Name: TUFTS ST
Project Number: 045163

Lab Number: L1956770
Report Date: 12/03/19

MCP Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-02 Batch: WG1315212-3

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Vinyl chloride	104		-		70-130	-		
Chloroethane	97		-		70-130	-		
1,1-Dichloroethene	104		-		70-130	-		
trans-1,2-Dichloroethene	94		-		70-130	-		
1,1-Dichloroethane	96		-		70-130	-		
cis-1,2-Dichloroethene	91		-		70-130	-		
1,2-Dichloroethane	95		-		70-130	-		
1,1,1-Trichloroethane	123		-		70-130	-		
Trichloroethene	103		-		70-130	-		
1,1,2-Trichloroethane	115		-		70-130	-		
Tetrachloroethene	88		-		70-130	-		
1,1,2,2-Tetrachloroethane	108		-		70-130	-		

Project Name: TUFTS ST

Project Number: 045163

Lab Number: L1956770

Report Date: 12/03/19

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controler Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1956770-01	045163-13KNOW-B	0555	Flow 5	11/19/19	307336		-	-	-	Pass	3.3	3.9	17
L1956770-01	045163-13KNOW-B	3276	6.0L Can	11/19/19	307336	L1953577-05	Pass	-28.9	-5.8	-	-	-	-
L1956770-02	045163-13KNOW-1	0483	Flow 5	11/19/19	307336		-	-	-	Pass	3.3	3.5	6
L1956770-02	045163-13KNOW-1	1553	6.0L Can	11/19/19	307336	L1954023-01	Pass	-28.7	-3.9	-	-	-	-

Project Name: INDIV. CANISTER CERTIFICATION
Project Number: CANISTER QC INDIV

Lab Number: L1953577
Report Date: 12/03/19

Air Canister Certification Results

Lab ID: L1953577-05
Client ID: CAN 3276
Sample Location:

Date Collected: 11/08/19 16:00
Date Received: 11/11/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 11/12/19 19:46
Analyst: TS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	7.47	5.00	--	9.79	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: INDIV. CANISTER CERTIFICATION **Lab Number:** L1953577

Project Number: CANISTER QC INDIV **Report Date:** 12/03/19

Air Canister Certification Results

Lab ID: L1953577-05
Client ID: CAN 3276
Sample Location:

Date Collected: 11/08/19 16:00
Date Received: 11/11/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
Xylenes, Total	ND	0.200	--	ND	0.869	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	0.200	--	ND	0.793	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1

Project Name: INDIV. CANISTER CERTIFICATION **Lab Number:** L1953577

Project Number: CANISTER QC INDIV **Report Date:** 12/03/19

Air Canister Certification Results

Lab ID: L1953577-05
Client ID: CAN 3276
Sample Location:

Date Collected: 11/08/19 16:00
Date Received: 11/11/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1

Project Name: INDIV. CANISTER CERTIFICATION **Lab Number:** L1953577

Project Number: CANISTER QC INDIV **Report Date:** 12/03/19

Air Canister Certification Results

Lab ID: L1953577-05
Client ID: CAN 3276
Sample Location:

Date Collected: 11/08/19 16:00
Date Received: 11/11/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Project Name: INDIV. CANISTER CERTIFICATION
Project Number: CANISTER QC INDIV

Lab Number: L1953577
Report Date: 12/03/19

Air Canister Certification Results

Lab ID: L1953577-05
Client ID: CAN 3276
Sample Location:

Date Collected: 11/08/19 16:00
Date Received: 11/11/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	97		60-140
Bromochloromethane	98		60-140
chlorobenzene-d5	99		60-140

Project Name: INDIV. CANISTER CERTIFICATION **Lab Number:** L1953577

Project Number: CANISTER QC INDIV **Report Date:** 12/03/19

Air Canister Certification Results

Lab ID: L1953577-05
Client ID: CAN 3276
Sample Location:

Date Collected: 11/08/19 16:00
Date Received: 11/11/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 11/12/19 19:46
Analyst: TS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.500	--	ND	0.500	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	2.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1

Project Name: INDIV. CANISTER CERTIFICATION **Lab Number:** L1953577

Project Number: CANISTER QC INDIV **Report Date:** 12/03/19

Air Canister Certification Results

Lab ID: L1953577-05
Client ID: CAN 3276
Sample Location:

Date Collected: 11/08/19 16:00
Date Received: 11/11/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.500	--	ND	0.983	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.500	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.500	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1

Project Name: INDIV. CANISTER CERTIFICATION **Lab Number:** L1953577

Project Number: CANISTER QC INDIV **Report Date:** 12/03/19

Air Canister Certification Results

Lab ID: L1953577-05
Client ID: CAN 3276
Sample Location:

Date Collected: 11/08/19 16:00
Date Received: 11/11/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
n-Butylbenzene	ND	0.500	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	86		60-140
bromochloromethane	88		60-140
chlorobenzene-d5	91		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954023
Report Date: 12/03/19

Air Canister Certification Results

Lab ID: L1954023-01
Client ID: CAN 2000 SHELF 52
Sample Location:

Date Collected: 11/12/19 16:00
Date Received: 11/13/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 11/13/19 15:54
Analyst: RY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1954023
Report Date: 12/03/19

Air Canister Certification Results

Lab ID: L1954023-01
Client ID: CAN 2000 SHELF 52
Sample Location:

Date Collected: 11/12/19 16:00
Date Received: 11/13/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
Xylenes, total	ND	0.600	--	ND	0.869	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	1.00	--	ND	1.00	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1954023
Report Date: 12/03/19

Air Canister Certification Results

Lab ID: L1954023-01
Client ID: CAN 2000 SHELF 52
Sample Location:

Date Collected: 11/12/19 16:00
Date Received: 11/13/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954023
Report Date: 12/03/19

Air Canister Certification Results

Lab ID: L1954023-01
Client ID: CAN 2000 SHELF 52
Sample Location:

Date Collected: 11/12/19 16:00
Date Received: 11/13/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954023
Report Date: 12/03/19

Air Canister Certification Results

Lab ID: L1954023-01
Client ID: CAN 2000 SHELF 52
Sample Location:

Date Collected: 11/12/19 16:00
Date Received: 11/13/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	94		60-140
Bromochloromethane	95		60-140
chlorobenzene-d5	92		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954023
Report Date: 12/03/19

Air Canister Certification Results

Lab ID: L1954023-01
Client ID: CAN 2000 SHELF 52
Sample Location:

Date Collected: 11/12/19 16:00
Date Received: 11/13/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 11/13/19 18:52
Analyst: TS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Acetaldehyde	ND	2.50	--	ND	4.50	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	2.50	--	ND	4.71	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
tert-Butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	1.00	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954023
Report Date: 12/03/19

Air Canister Certification Results

Lab ID: L1954023-01
Client ID: CAN 2000 SHELF 52
Sample Location:

Date Collected: 11/12/19 16:00
Date Received: 11/13/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Thiophene	ND	0.200	--	ND	0.688	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
2-Methylthiophene	ND	0.200	--	ND	0.803	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
3-Methylthiophene	ND	0.200	--	ND	0.803	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1954023
Report Date: 12/03/19

Air Canister Certification Results

Lab ID: L1954023-01
Client ID: CAN 2000 SHELF 52
Sample Location:

Date Collected: 11/12/19 16:00
Date Received: 11/13/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
2-Ethylthiophene	ND	0.200	--	ND	0.918	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.869	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,3-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
Indane	ND	0.200	--	ND	0.967	--		1
Indene	ND	0.200	--	ND	0.951	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
1,2,4,5-Tetramethylbenzene	ND	0.200	--	ND	1.10	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L1954023

Project Number: CANISTER QC BAT **Report Date:** 12/03/19

Air Canister Certification Results

Lab ID: L1954023-01
Client ID: CAN 2000 SHELF 52
Sample Location:

Date Collected: 11/12/19 16:00
Date Received: 11/13/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Benzothiophene	ND	0.500	--	ND	2.74	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1
2-Methylnaphthalene	ND	1.00	--	ND	5.82	--		1
1-Methylnaphthalene	ND	1.00	--	ND	5.82	--		1

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	106		60-140
Bromochloromethane	106		60-140
chlorobenzene-d5	104		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954023
Report Date: 12/03/19

Air Canister Certification Results

Lab ID: L1954023-01
Client ID: CAN 2000 SHELF 52
Sample Location:

Date Collected: 11/12/19 16:00
Date Received: 11/13/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 11/13/19 15:54
Analyst: RY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954023
Report Date: 12/03/19

Air Canister Certification Results

Lab ID: L1954023-01
Client ID: CAN 2000 SHELF 52
Sample Location:

Date Collected: 11/12/19 16:00
Date Received: 11/13/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954023
Report Date: 12/03/19

Air Canister Certification Results

Lab ID: L1954023-01
Client ID: CAN 2000 SHELF 52
Sample Location:

Date Collected: 11/12/19 16:00
Date Received: 11/13/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	93		60-140
bromochloromethane	96		60-140
chlorobenzene-d5	93		60-140

Project Name: TUFTS ST
Project Number: 045163

Lab Number: L1956770
Report Date: 12/03/19

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
NA	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1956770-01A	Canister - 6 Liter	NA	NA			Y	Absent		MCP-TO15-SIM(30)
L1956770-02A	Canister - 6 Liter	NA	NA			Y	Absent		MCP-TO15-SIM(30)

*Values in parentheses indicate holding time in days

Project Name:	TUFTS ST	**Lab Number:**	L1956770
Project Number:	045163	**Report Date:**	12/03/19

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: Data Usability Report

Project Name:	TUFTS ST	**Lab Number:**	L1956770
Project Number:	045163	**Report Date:**	12/03/19

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

Report Format: Data Usability Report

Project Name:	TUFTS ST	**Lab Number:**	L1956770
Project Number:	045163	**Report Date:**	12/03/19

Data Qualifiers

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: Data Usability Report

Project Name:	TUFTS ST	**Lab Number:**	L1956770
Project Number:	045163	**Report Date:**	12/03/19

REFERENCES

101 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air (EPA/625/R-96/010b:January 1999) with QC Requirements & Performance Standards for the Analysis of TO-15 under the Massachusetts Contingency Plan, WSC-CAM-IXB, July 2010.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

AIR ANALYSIS

PAGE 1 OF 1

ALPHA ANALYTICAL — CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 11/25/19

ALPHA Job #: L1956770

Client Information

Client: GEI Consultants
Address: 400 Unicorn Park Dr.
Woburn MA 01801
Phone: 781-721-4000
Fax:
Email: labdata@geiconsultants.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Tufts Street
Project Location: Somerville, MA
Project #: 045163
Project Manager: J. Roman
ALPHA Quote #:

Turn-Around Time

■ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX
☒ ADEx
Criteria Checker:
(Default based on Regulatory Criteria Indicated)
Other Formats:
☐ EMAIL (standard pdf report)
☐ Additional Deliverables:
Report to: (if different than Project Manager)

Billing Information

■ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed	Program	Res / Comm

Other Project Specific Requirements/Comments:

Project-Specific Target Compound List: ☐

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	COLLECTION End Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	ANALYSIS TO-15	TO-15 SIM *	APH Subset Non-petroleum HCs ☐	Fixed Gases	Sulfides & Mercaptans by TO-15	Sample Comments (i.e. PID)
56770-01	045163-13KNOW-B	11/22/19	822	805	-30.90	-6.65	IA	MEG	6L	3216	0555	X					*See list attached
-02	045163-13KNOW-1	11/22/19	817	801	-30.92	-4.33	IA	MEG	6L	1553	0483	X					

*SAMPLE MATRIX CODES
AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Relinquished By:	Date/Time	Received By:	Date/Time:
Molly Free	11/22/19 1500	GEI Field Room	11/22/19 1500
GEI Fed Ex	11/25/19 1403	[illegible]	11/25/19 1403
[illegible] AAC	11/25 1605	[illegible] AAC	11/25 1605
			11/25/19 1907
			11/27/19 2000
	11/25/19 2100		11/25/19 2109

Form No: 101-02 Rev: (25-Sep-15)

- Vinyl chloride
- Chloroethane
- 1,1-Dichloroethene
- trans-1,2-Dichloroethene
- 1,1-Dichloroethane
- cis-1,2-Dichloroethene
- 1,2-Dichloroethane
- 1,1,1-Trichloroethane
- Trichloroethene
- 1,1,2-Trichloroethane
- Tetrachloroethene
- 1,1,2,2-Tetrachloroethane

ANALYTICAL REPORT

Lab Number:	L1957380
Client:	GEI Consultants 400 Unicorn Park Drive Woburn, MA 01801
ATTN:	Joe Roman
Phone:	(781) 721-4000
Project Name:	TUFTS ST/163 GLEN ST.
Project Number:	045163
Report Date:	12/06/19

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0141), DoD (L2474), FL (E87814), IL (200081), LA (85084), ME (MA00030), MD (350), NJ (MA015), NY (11627), NC (685), OH (CL106), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #P330-17-00150), USFWS (Permit #206964).

Six Park Row, Mansfield, MA 02048
508-261-7467 (Fax) -- -- - emccarter@mansfieldma.com

Project Name: TUFTS ST/163 GLEN ST.
Project Number: 045163

Lab Number: L1957380
Report Date: 12/06/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1957380-01	045163-163GLEN-IA-1	AIR	SOMERVILLE, MA	11/27/19 08:30	11/27/19
L1957380-02	045163-163GLEN-IA-2	AIR	SOMERVILLE, MA	11/27/19 08:29	11/27/19
L1957380-03	045163-163GLEN-IA-3	AIR	SOMERVILLE, MA	11/27/19 08:27	11/27/19
L1957380-04	045163-163GLEN-IA-4	AIR	SOMERVILLE, MA	11/27/19 08:28	11/27/19
L1957380-05	045163-163GLEN-SSV2	SOIL_VAPOR	SOMERVILLE, MA	11/27/19 09:41	11/27/19
L1957380-06	045163-163GLEN-SSV3	SOIL_VAPOR	SOMERVILLE, MA	11/27/19 09:38	11/27/19

Project Name: TUFTS ST/163 GLEN ST. **Lab Number:** L1957380

Project Number: 045163 **Report Date:** 12/06/19

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	N/A
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	YES
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES

A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	NO
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	YES
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	YES

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.

Project Name:	TUFTS ST/163 GLEN ST.	**Lab Number:**	L1957380
Project Number:	045163	**Report Date:**	12/06/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	TUFTS ST/163 GLEN ST.	**Lab Number:**	L1957380
Project Number:	045163	**Report Date:**	12/06/19

Case Narrative (continued)

MCP Related Narratives

Canisters were released from the laboratory on November 21, 2019. The canister certification data is provided as an addendum.

MCP Volatile Organics in Air

In reference to question G:

One or more of the target analytes did not achieve the requested CAM reporting limits.

L1957380-05 & -06: The samples has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the samples.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Christopher J. Anderson

Title: Technical Director/Representative Date: 12/06/19

QC OUTLIER SUMMARY REPORT

Project Name: TUFTS ST/163 GLEN ST.
Project Number: 045163

Lab Number: L1957380
Report Date: 12/06/19

Method	Client ID (Native ID)	Lab ID	Parameter	QC Type	Recovery/RPD (%)	QC Limits (%)	Associated Samples	Data Quality Assessment

There are no QC Outliers associated with this report.

AIR

Project Name: TUFTS ST/163 GLEN ST.
Project Number: 045163
Lab Number: L1957380
Report Date: 12/06/19

SAMPLE RESULTS

Lab ID: L1957380-01
Client ID: 045163-163GLEN-IA-1
Sample Location: SOMERVILLE, MA

Date Collected: 11/27/19 08:30
Date Received: 11/27/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 101,TO-15-SIM
Analytical Date: 12/05/19 20:56
Analyst: EW

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
MCP Volatile Organics in Air by SIM - Mansfield Lab								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Tetrachloroethene	0.040	0.020	--	0.271	0.136	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-difluorobenzene	94		60-140
bromochloromethane	96		60-140
chlorobenzene-d5	96		60-140

Project Name: TUFTS ST/163 GLEN ST.
Project Number: 045163
Lab Number: L1957380
Report Date: 12/06/19

SAMPLE RESULTS

Lab ID: L1957380-02
Client ID: 045163-163GLEN-IA-2
Sample Location: SOMERVILLE, MA

Date Collected: 11/27/19 08:29
Date Received: 11/27/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 101,TO-15-SIM
Analytical Date: 12/05/19 21:28
Analyst: EW

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
MCP Volatile Organics in Air by SIM - Mansfield Lab								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Trichloroethene	0.143	0.020	--	0.769	0.107	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Tetrachloroethene	0.034	0.020	--	0.231	0.136	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-difluorobenzene	92		60-140
bromochloromethane	96		60-140
chlorobenzene-d5	96		60-140

Project Name: TUFTS ST/163 GLEN ST.
Project Number: 045163
Lab Number: L1957380
Report Date: 12/06/19

SAMPLE RESULTS

Lab ID: L1957380-03
Client ID: 045163-163GLEN-IA-3
Sample Location: SOMERVILLE, MA

Date Collected: 11/27/19 08:27
Date Received: 11/27/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 101,TO-15-SIM
Analytical Date: 12/05/19 22:01
Analyst: EW

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
MCP Volatile Organics in Air by SIM - Mansfield Lab								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Tetrachloroethene	0.029	0.020	--	0.197	0.136	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-difluorobenzene	91		60-140
bromochloromethane	94		60-140
chlorobenzene-d5	94		60-140

Project Name: TUFTS ST/163 GLEN ST.
Project Number: 045163
Lab Number: L1957380
Report Date: 12/06/19

SAMPLE RESULTS

Lab ID: L1957380-04
Client ID: 045163-163GLEN-IA-4
Sample Location: SOMERVILLE, MA

Date Collected: 11/27/19 08:28
Date Received: 11/27/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 101,TO-15-SIM
Analytical Date: 12/05/19 23:05
Analyst: EW

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
MCP Volatile Organics in Air by SIM - Mansfield Lab								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Trichloroethene	0.023	0.020	--	0.124	0.107	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Tetrachloroethene	0.035	0.020	--	0.237	0.136	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-difluorobenzene	90		60-140
bromochloromethane	93		60-140
chlorobenzene-d5	94		60-140

Project Name: TUFTS ST/163 GLEN ST.
Project Number: 045163
Lab Number: L1957380
Report Date: 12/06/19

SAMPLE RESULTS

Lab ID: L1957380-05 D
Client ID: 045163-163GLEN-SSV2
Sample Location: SOMERVILLE, MA

Date Collected: 11/27/19 09:41
Date Received: 11/27/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 101,TO-15-SIM
Analytical Date: 12/05/19 23:35
Analyst: EW

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
MCP Volatile Organics in Air by SIM - Mansfield Lab								
Vinyl chloride	1.02	0.100	--	2.61	0.256	--		5
Chloroethane	ND	0.500	--	ND	1.32	--		5
1,1-Dichloroethene	ND	0.100	--	ND	0.396	--		5
trans-1,2-Dichloroethene	ND	0.100	--	ND	0.396	--		5
1,1-Dichloroethane	ND	0.100	--	ND	0.405	--		5
cis-1,2-Dichloroethene	ND	0.100	--	ND	0.396	--		5
1,2-Dichloroethane	ND	0.100	--	ND	0.405	--		5
1,1,1-Trichloroethane	4.28	0.100	--	23.4	0.546	--		5
Trichloroethene	2.36	0.100	--	12.7	0.537	--		5
1,1,2-Trichloroethane	ND	0.100	--	ND	0.546	--		5
Tetrachloroethene	0.395	0.100	--	2.68	0.678	--		5
1,1,2,2-Tetrachloroethane	ND	0.100	--	ND	0.687	--		5

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-difluorobenzene	92		60-140
bromochloromethane	94		60-140
chlorobenzene-d5	100		60-140

Project Name: TUFTS ST/163 GLEN ST.
Project Number: 045163
Lab Number: L1957380
Report Date: 12/06/19

SAMPLE RESULTS

Lab ID: L1957380-06 D
Client ID: 045163-163GLEN-SSV3
Sample Location: SOMERVILLE, MA

Date Collected: 11/27/19 09:38
Date Received: 11/27/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 101,TO-15-SIM
Analytical Date: 12/06/19 00:06
Analyst: EW

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
MCP Volatile Organics in Air by SIM - Mansfield Lab								
Vinyl chloride	0.325	0.100	--	0.831	0.256	--		5
Chloroethane	ND	0.500	--	ND	1.32	--		5
1,1-Dichloroethene	ND	0.100	--	ND	0.396	--		5
trans-1,2-Dichloroethene	ND	0.100	--	ND	0.396	--		5
1,1-Dichloroethane	ND	0.100	--	ND	0.405	--		5
cis-1,2-Dichloroethene	ND	0.100	--	ND	0.396	--		5
1,2-Dichloroethane	ND	0.100	--	ND	0.405	--		5
1,1,1-Trichloroethane	0.585	0.100	--	3.19	0.546	--		5
Trichloroethene	1.41	0.100	--	7.58	0.537	--		5
1,1,2-Trichloroethane	ND	0.100	--	ND	0.546	--		5
Tetrachloroethene	0.375	0.100	--	2.54	0.678	--		5
1,1,2,2-Tetrachloroethane	ND	0.100	--	ND	0.687	--		5

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-difluorobenzene	93		60-140
bromochloromethane	96		60-140
chlorobenzene-d5	101		60-140

Project Name: TUFTS ST/163 GLEN ST.
Project Number: 045163
Lab Number: L1957380
Report Date: 12/06/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 101,TO-15-SIM
Analytical Date: 12/05/19 14:49

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
MCP Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01-06 Batch: WG1317255-4								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1

Lab Control Sample Analysis

Batch Quality Control

Project Name: TUFTS ST/163 GLEN ST.

Project Number: 045163

Lab Number: L1957380

Report Date: 12/06/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-06 Batch: WG1317255-3								
Vinyl chloride	102		-		70-130	-		
Chloroethane	96		-		70-130	-		
1,1-Dichloroethene	103		-		70-130	-		
trans-1,2-Dichloroethene	94		-		70-130	-		
1,1-Dichloroethane	92		-		70-130	-		
cis-1,2-Dichloroethene	87		-		70-130	-		
1,2-Dichloroethane	94		-		70-130	-		
1,1,1-Trichloroethane	117		-		70-130	-		
Trichloroethene	100		-		70-130	-		
1,1,2-Trichloroethane	108		-		70-130	-		
Tetrachloroethene	85		-		70-130	-		
1,1,2,2-Tetrachloroethane	98		-		70-130	-		

Lab Duplicate Analysis
Batch Quality Control

Project Name: TUFTS ST/163 GLEN ST.
Project Number: 045163

Lab Number: L1957380
Report Date: 12/06/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
MCP Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1317255-5 QC Sample: L1957380-03 Client ID: 045163-163GLEN-IA-3						
Vinyl chloride	ND	ND	ppbV	NC		25
Chloroethane	ND	ND	ppbV	NC		25
1,1-Dichloroethene	ND	ND	ppbV	NC		25
trans-1,2-Dichloroethene	ND	ND	ppbV	NC		25
1,1-Dichloroethane	ND	ND	ppbV	NC		25
cis-1,2-Dichloroethene	ND	ND	ppbV	NC		25
1,2-Dichloroethane	ND	ND	ppbV	NC		25
1,1,1-Trichloroethane	ND	ND	ppbV	NC		25
Trichloroethene	ND	ND	ppbV	NC		25
1,1,2-Trichloroethane	ND	ND	ppbV	NC		25
Tetrachloroethene	0.029	0.030	ppbV	3		25
1,1,2,2-Tetrachloroethane	ND	ND	ppbV	NC		25

Project Name: TUFTS ST/163 GLEN ST.

Lab Number: L1957380

Project Number: 045163

Report Date: 12/06/19

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controler Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1957380-01	045163-163GLEN-IA-1	01376	Flow 5	11/21/19	308032		-	-	-	Pass	3.3	3.6	9
L1957380-01	045163-163GLEN-IA-1	2594	6.0L Can	11/21/19	308032	L1954988-03	Pass	-29.2	-2.6	-	-	-	-
L1957380-02	045163-163GLEN-IA-2	0551	Flow 5	11/21/19	308032		-	-	-	Pass	3.3	3.5	6
L1957380-02	045163-163GLEN-IA-2	767	6.0L Can	11/21/19	308032	L1954988-04	Pass	-29.2	-3.2	-	-	-	-
L1957380-03	045163-163GLEN-IA-3	01185	Flow 5	11/21/19	308032		-	-	-	Pass	3.3	3.3	0
L1957380-03	045163-163GLEN-IA-3	3054	6.0L Can	11/21/19	308032	L1952885-02	Pass	-29.1	-2.9	-	-	-	-
L1957380-04	045163-163GLEN-IA-4	0498	Flow 5	11/21/19	308032		-	-	-	Pass	3.3	3.4	3
L1957380-04	045163-163GLEN-IA-4	930	6.0L Can	11/21/19	308032	L1952885-01	Pass	-29.2	-1.3	-	-	-	-
L1957380-05	045163-163GLEN-SSV2	01128	Flow 2	11/21/19	308032		-	-	-	Pass	36.0	41.7	15
L1957380-05	045163-163GLEN-SSV2	282	2.7L Can	11/21/19	308032	L1954023-04	Pass	-29.3	0.0	-	-	-	-
L1957380-06	045163-163GLEN-SSV3	0556	Flow 2	11/21/19	308032		-	-	-	Pass	36.0	38.8	7
L1957380-06	045163-163GLEN-SSV3	3197	2.7L Can	11/21/19	308032	L1949754-16	Pass	-29.1	-2.7	-	-	-	-

Project Name: INDIV. CANISTER CERTIFICATION
Project Number: CANISTER QC INDIV
Lab Number: L1949754
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1949754-16
Client ID: CAN 3197
Sample Location:

Date Collected: 10/18/19 09:00
Date Received: 10/22/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 11/01/19 05:41
Analyst: TS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: INDIV. CANISTER CERTIFICATION **Lab Number:** L1949754

Project Number: CANISTER QC INDIV **Report Date:** 12/06/19

Air Canister Certification Results

Lab ID: L1949754-16
Client ID: CAN 3197
Sample Location:

Date Collected: 10/18/19 09:00
Date Received: 10/22/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
Xylenes, Total	ND	0.200	--	ND	0.869	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	0.200	--	ND	0.793	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1

Project Name: INDIV. CANISTER CERTIFICATION **Lab Number:** L1949754

Project Number: CANISTER QC INDIV **Report Date:** 12/06/19

Air Canister Certification Results

Lab ID: L1949754-16
Client ID: CAN 3197
Sample Location:

Date Collected: 10/18/19 09:00
Date Received: 10/22/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1

Project Name: INDIV. CANISTER CERTIFICATION **Lab Number:** L1949754

Project Number: CANISTER QC INDIV **Report Date:** 12/06/19

Air Canister Certification Results

Lab ID: L1949754-16
Client ID: CAN 3197
Sample Location:

Date Collected: 10/18/19 09:00
Date Received: 10/22/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Project Name: INDIV. CANISTER CERTIFICATION
Project Number: CANISTER QC INDIV

Lab Number: L1949754
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1949754-16
Client ID: CAN 3197
Sample Location:

Date Collected: 10/18/19 09:00
Date Received: 10/22/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	83		60-140
Bromochloromethane	81		60-140
chlorobenzene-d5	77		60-140

Project Name: INDIV. CANISTER CERTIFICATION **Lab Number:** L1949754

Project Number: CANISTER QC INDIV **Report Date:** 12/06/19

Air Canister Certification Results

Lab ID: L1949754-16
Client ID: CAN 3197
Sample Location:

Date Collected: 10/18/19 09:00
Date Received: 10/22/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 11/01/19 05:41
Analyst: TS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.500	--	ND	0.500	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	2.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1

Project Name: INDIV. CANISTER CERTIFICATION **Lab Number:** L1949754

Project Number: CANISTER QC INDIV **Report Date:** 12/06/19

Air Canister Certification Results

Lab ID: L1949754-16
Client ID: CAN 3197
Sample Location:

Date Collected: 10/18/19 09:00
Date Received: 10/22/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.500	--	ND	0.983	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.500	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.500	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1

Project Name: INDIV. CANISTER CERTIFICATION **Lab Number:** L1949754

Project Number: CANISTER QC INDIV **Report Date:** 12/06/19

Air Canister Certification Results

Lab ID: L1949754-16
Client ID: CAN 3197
Sample Location:

Date Collected: 10/18/19 09:00
Date Received: 10/22/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
n-Butylbenzene	ND	0.500	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	78		60-140
bromochloromethane	74		60-140
chlorobenzene-d5	78		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1952885
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1952885-01
Client ID: CAN 930 SHELF 35
Sample Location:

Date Collected: 11/06/19 16:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 11/07/19 17:01
Analyst: TS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1952885
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1952885-01
Client ID: CAN 930 SHELF 35
Sample Location:

Date Collected: 11/06/19 16:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
Xylenes, total	ND	0.600	--	ND	0.869	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	1.00	--	ND	1.00	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L1952885

Project Number: CANISTER QC BAT **Report Date:** 12/06/19

Air Canister Certification Results

Lab ID: L1952885-01
Client ID: CAN 930 SHELF 35
Sample Location:

Date Collected: 11/06/19 16:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L1952885

Project Number: CANISTER QC BAT **Report Date:** 12/06/19

Air Canister Certification Results

Lab ID: L1952885-01
Client ID: CAN 930 SHELF 35
Sample Location:

Date Collected: 11/06/19 16:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1952885
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1952885-01
Client ID: CAN 930 SHELF 35
Sample Location:

Date Collected: 11/06/19 16:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	77		60-140
Bromochloromethane	88		60-140
chlorobenzene-d5	86		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1952885
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1952885-01
Client ID: CAN 930 SHELF 35
Sample Location:

Date Collected: 11/06/19 16:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 11/07/19 17:01
Analyst: TS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952885
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1952885-01
Client ID: CAN 930 SHELF 35
Sample Location:

Date Collected: 11/06/19 16:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1952885
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1952885-01
Client ID: CAN 930 SHELF 35
Sample Location:

Date Collected: 11/06/19 16:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	79		60-140
bromochloromethane	88		60-140
chlorobenzene-d5	85		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1952885
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1952885-02
Client ID: CAN 3054 SHELF 39
Sample Location:

Date Collected: 11/06/19 16:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 11/07/19 17:40
Analyst: TS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952885
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1952885-02
Client ID: CAN 3054 SHELF 39
Sample Location:

Date Collected: 11/06/19 16:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
Xylenes, total	ND	0.600	--	ND	0.869	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	1.00	--	ND	1.00	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952885
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1952885-02
Client ID: CAN 3054 SHELF 39
Sample Location:

Date Collected: 11/06/19 16:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1952885
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1952885-02
Client ID: CAN 3054 SHELF 39
Sample Location:

Date Collected: 11/06/19 16:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L1952885

Project Number: CANISTER QC BAT **Report Date:** 12/06/19

Air Canister Certification Results

Lab ID: L1952885-02
Client ID: CAN 3054 SHELF 39
Sample Location:

Date Collected: 11/06/19 16:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	72		60-140
Bromochloromethane	84		60-140
chlorobenzene-d5	83		60-140

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L1952885

Project Number: CANISTER QC BAT **Report Date:** 12/06/19

Air Canister Certification Results

Lab ID: L1952885-02
Client ID: CAN 3054 SHELF 39
Sample Location:

Date Collected: 11/06/19 16:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 11/07/19 17:40
Analyst: TS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L1952885

Project Number: CANISTER QC BAT **Report Date:** 12/06/19

Air Canister Certification Results

Lab ID: L1952885-02
Client ID: CAN 3054 SHELF 39
Sample Location:

Date Collected: 11/06/19 16:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1952885
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1952885-02
Client ID: CAN 3054 SHELF 39
Sample Location:

Date Collected: 11/06/19 16:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	73		60-140
bromochloromethane	84		60-140
chlorobenzene-d5	82		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954023
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1954023-04
Client ID: CAN 555 SHELF 16
Sample Location:

Date Collected: 11/12/19 16:00
Date Received: 11/13/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 11/13/19 18:51
Analyst: RY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954023
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1954023-04
Client ID: CAN 555 SHELF 16
Sample Location:

Date Collected: 11/12/19 16:00
Date Received: 11/13/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
Xylenes, total	ND	0.600	--	ND	0.869	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	1.00	--	ND	1.00	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1954023
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1954023-04
Client ID: CAN 555 SHELF 16
Sample Location:

Date Collected: 11/12/19 16:00
Date Received: 11/13/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954023
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1954023-04
Client ID: CAN 555 SHELF 16
Sample Location:

Date Collected: 11/12/19 16:00
Date Received: 11/13/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954023
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1954023-04
Client ID: CAN 555 SHELF 16
Sample Location:

Date Collected: 11/12/19 16:00
Date Received: 11/13/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	87		60-140
Bromochloromethane	93		60-140
chlorobenzene-d5	90		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954023
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1954023-04
Client ID: CAN 555 SHELF 16
Sample Location:

Date Collected: 11/12/19 16:00
Date Received: 11/13/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 11/14/19 06:25
Analyst: TS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Acetaldehyde	ND	2.50	--	ND	4.50	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	2.50	--	ND	4.71	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
tert-Butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	1.00	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954023
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1954023-04
Client ID: CAN 555 SHELF 16
Sample Location:

Date Collected: 11/12/19 16:00
Date Received: 11/13/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Thiophene	ND	0.200	--	ND	0.688	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
2-Methylthiophene	ND	0.200	--	ND	0.803	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
3-Methylthiophene	ND	0.200	--	ND	0.803	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954023
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1954023-04
Client ID: CAN 555 SHELF 16
Sample Location:

Date Collected: 11/12/19 16:00
Date Received: 11/13/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
2-Ethylthiophene	ND	0.200	--	ND	0.918	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.869	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,3-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
Indane	ND	0.200	--	ND	0.967	--		1
Indene	ND	0.200	--	ND	0.951	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
1,2,4,5-Tetramethylbenzene	ND	0.200	--	ND	1.10	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L1954023

Project Number: CANISTER QC BAT **Report Date:** 12/06/19

Air Canister Certification Results

Lab ID: L1954023-04
Client ID: CAN 555 SHELF 16
Sample Location:

Date Collected: 11/12/19 16:00
Date Received: 11/13/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Benzothiophene	ND	0.500	--	ND	2.74	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1
2-Methylnaphthalene	ND	1.00	--	ND	5.82	--		1
1-Methylnaphthalene	ND	1.00	--	ND	5.82	--		1

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	103		60-140
Bromochloromethane	103		60-140
chlorobenzene-d5	102		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954023
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1954023-04
Client ID: CAN 555 SHELF 16
Sample Location:

Date Collected: 11/12/19 16:00
Date Received: 11/13/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 11/13/19 18:51
Analyst: RY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954023
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1954023-04
Client ID: CAN 555 SHELF 16
Sample Location:

Date Collected: 11/12/19 16:00
Date Received: 11/13/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954023
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1954023-04
Client ID: CAN 555 SHELF 16
Sample Location:

Date Collected: 11/12/19 16:00
Date Received: 11/13/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	87		60-140
bromochloromethane	94		60-140
chlorobenzene-d5	91		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954988
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1954988-03
Client ID: CAN 2594 SHELF 42
Sample Location:

Date Collected: 11/18/19 09:00
Date Received: 11/18/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 11/18/19 19:19
Analyst: RY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954988
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1954988-03
Client ID: CAN 2594 SHELF 42
Sample Location:

Date Collected: 11/18/19 09:00
Date Received: 11/18/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
Xylenes, total	ND	0.600	--	ND	0.869	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	1.00	--	ND	1.00	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L1954988

Project Number: CANISTER QC BAT **Report Date:** 12/06/19

Air Canister Certification Results

Lab ID: L1954988-03
Client ID: CAN 2594 SHELF 42
Sample Location:

Date Collected: 11/18/19 09:00
Date Received: 11/18/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L1954988

Project Number: CANISTER QC BAT **Report Date:** 12/06/19

Air Canister Certification Results

Lab ID: L1954988-03
Client ID: CAN 2594 SHELF 42
Sample Location:

Date Collected: 11/18/19 09:00
Date Received: 11/18/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954988
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1954988-03
Client ID: CAN 2594 SHELF 42
Sample Location:

Date Collected: 11/18/19 09:00
Date Received: 11/18/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	85		60-140
Bromochloromethane	81		60-140
chlorobenzene-d5	85		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954988
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1954988-03
Client ID: CAN 2594 SHELF 42
Sample Location:

Date Collected: 11/18/19 09:00
Date Received: 11/18/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 11/18/19 19:19
Analyst: RY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954988
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1954988-03
Client ID: CAN 2594 SHELF 42
Sample Location:

Date Collected: 11/18/19 09:00
Date Received: 11/18/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954988
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1954988-03
Client ID: CAN 2594 SHELF 42
Sample Location:

Date Collected: 11/18/19 09:00
Date Received: 11/18/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	85		60-140
bromochloromethane	81		60-140
chlorobenzene-d5	86		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954988
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1954988-04
Client ID: CAN 767 SHELF 44
Sample Location:

Date Collected: 11/18/19 09:00
Date Received: 11/18/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 11/18/19 19:57
Analyst: RY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L1954988

Project Number: CANISTER QC BAT **Report Date:** 12/06/19

Air Canister Certification Results

Lab ID: L1954988-04
Client ID: CAN 767 SHELF 44
Sample Location:

Date Collected: 11/18/19 09:00
Date Received: 11/18/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
Xylenes, total	ND	0.600	--	ND	0.869	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	1.00	--	ND	1.00	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L1954988

Project Number: CANISTER QC BAT **Report Date:** 12/06/19

Air Canister Certification Results

Lab ID: L1954988-04
Client ID: CAN 767 SHELF 44
Sample Location:

Date Collected: 11/18/19 09:00
Date Received: 11/18/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954988
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1954988-04
Client ID: CAN 767 SHELF 44
Sample Location:

Date Collected: 11/18/19 09:00
Date Received: 11/18/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L1954988

Project Number: CANISTER QC BAT **Report Date:** 12/06/19

Air Canister Certification Results

Lab ID: L1954988-04
Client ID: CAN 767 SHELF 44
Sample Location:

Date Collected: 11/18/19 09:00
Date Received: 11/18/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	85		60-140
Bromochloromethane	80		60-140
chlorobenzene-d5	85		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954988
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1954988-04
Client ID: CAN 767 SHELF 44
Sample Location:

Date Collected: 11/18/19 09:00
Date Received: 11/18/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 11/18/19 19:57
Analyst: RY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954988
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1954988-04
Client ID: CAN 767 SHELF 44
Sample Location:

Date Collected: 11/18/19 09:00
Date Received: 11/18/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1954988
Report Date: 12/06/19

Air Canister Certification Results

Lab ID: L1954988-04
Client ID: CAN 767 SHELF 44
Sample Location:

Date Collected: 11/18/19 09:00
Date Received: 11/18/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	85		60-140
bromochloromethane	81		60-140
chlorobenzene-d5	86		60-140

Project Name: TUFTS ST/163 GLEN ST.
Project Number: 045163

Lab Number: L1957380
Report Date: 12/06/19

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
NA	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1957380-01A	Canister - 6 Liter	NA	NA			Y	Absent		MCP-TO15-SIM(30)
L1957380-02A	Canister - 6 Liter	NA	NA			Y	Absent		MCP-TO15-SIM(30)
L1957380-03A	Canister - 6 Liter	NA	NA			Y	Absent		MCP-TO15-SIM(30)
L1957380-04A	Canister - 6 Liter	NA	NA			Y	Absent		MCP-TO15-SIM(30)
L1957380-05A	Canister - 2.7 Liter	NA	NA			Y	Absent		MCP-TO15-SIM(30)
L1957380-06A	Canister - 2.7 Liter	NA	NA			Y	Absent		MCP-TO15-SIM(30)

*Values in parentheses indicate holding time in days

Project Name:	TUFTS ST/163 GLEN ST.	**Lab Number:**	L1957380
Project Number:	045163	**Report Date:**	12/06/19

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: Data Usability Report

Project Name:	TUFTS ST/163 GLEN ST.	**Lab Number:**	L1957380
Project Number:	045163	**Report Date:**	12/06/19

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

Report Format: Data Usability Report

Project Name:	TUFTS ST/163 GLEN ST.	**Lab Number:**	L1957380
Project Number:	045163	**Report Date:**	12/06/19

Data Qualifiers

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: Data Usability Report

Project Name:	TUFTS ST/163 GLEN ST.	**Lab Number:**	L1957380
Project Number:	045163	**Report Date:**	12/06/19

REFERENCES

101 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air (EPA/625/R-96/010b:January 1999) with QC Requirements & Performance Standards for the Analysis of TO-15 under the Massachusetts Contingency Plan, WSC-CAM-IXB, July 2010.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

AIR ANALYSIS

ALPHA ANALYTICAL — CHAIN OF CUSTODY

PAGE 1 OF 1

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 11/27/19

ALPHA Job #: L1957380

Client Information

Client: GEI Consultants, Inc.
Address: 400 Unicorn Park Drive
Woburn, MA
Phone: (781) 721-4000
Fax:
Email: labdata@geiconsultants.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Tufts ST/163 Glen St.
Project Location: Somerville, MA
Project #: 045163
Project Manager: Joe Roman
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX
☒ ADEx
Criteria Checker:
(Default based on Regulatory Criteria Indicated)
Other Formats:
☐ EMAIL (standard pdf report)
☐ Additional Deliverables:
Report to: (if different than Project Manager)

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed	Program	Res / Comm

Other Project Specific Requirements/Comments:

Project-Specific Target Compound List: ☒ see attached

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	COLLECTION End Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	ID Can	ID - Flow Controller	TO-15	TO-15 SIM	APH Subset Isoparaffinic HCs	Fixed Gases	Sulfides & Mercaptans by TO-15	☐	Sample Comments (i.e. PID)
57380-01	045163-163Glen-IA-1	11/27/19	0830	0830	-30.01	-4.63	AA	SMT	6	2574	01376	X						
-02	045163-163Glen-IA-2	11/27/19	0829	0829	-29.91	-5.47	AA	SMT	6	767	0551	X						
-03	045163-163 Glen-IA-3	11/27/19	0827	0827	-29.93	-4.97	AA	SMT	6	3054	01185	X						
-04	045163-163Glen-IA-4	11/27/19	0828	0828	-30.30	-3.33	AA	SMT	6	930	0498	X						
-05	045163-163Glen-SSV2	11/27/19	0841	0941	-30.24	-2.75	SV	SMT	2.7	282	01128	X						TO-15 SIM
-06	045163-163Glen-SSV3	11/27/19	0838	~~0834~~ 0938	-29.72	-4.60	SV	SMT	2.7	3197	0556	X						TO-15 SIM

*SAMPLE MATRIX CODES
AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type

Relinquished By:	Date/Time	Received By:	Date/Time:
GEI Field room	11/27/19 1030	GEI field room	11/27/19 1030
Chase Gilbert	11/27/19 1100	Chase Gilbert	11/27/19 1100
Swabs	11/27/19 1330		11/27/19 1330

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Form No: 101-02 Rev: (25-Sep-15)

Indoor Air Sampling Analyte List

- 1,1-Dichloroethane
- 1,1-Dichloroethylene
- trans-1,2-Dichloroethylene
- cis-1,2-Dichloroethylene
- 1,1,1-Trichloroethane
- 1,1,2,2-Tetrachloroethane
- 1,1,2-Trichloroethane
- Tetrachloroethylene
- Trichloroethylene
- Vinyl Chloride

Appendix D

GLX Project Soil Disposal Pre-characterization Results

Summary of Phase 1 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

LOCATION							GLX-TPW-306-1		GLX-TPW-307-1.5		GLX-TPW-307-1.5		GLX-TPW-201-1.5		GLX-TPW-201-7		GLX-TPW-308-0.5	
SAMPLING DATE							5/23/2019		5/23/2019		5/23/2019		5/23/2019		5/23/2019		5/23/2019	
LAB SAMPLE ID							L1921946-01		L1921946-04		L1921946-04 R1		L1921946-07		L1921946-13		L1921946-16	
SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)																		
	CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
General Chemistry																		
Solids, Total	NONE					%	93.3		87.9		-	-	86.8		81.1		94.2	
MCP Volatile Organics by EPA 5035																		
Methylene chloride	75-09-2			0.1	NS	mg/kg	0.0043	U	0.0064	U	0.0058	U	0.3	U	0.0043	U	0.21	U
1,1-Dichloroethane	75-34-3			0.4	0.4	mg/kg	0.00086	U	0.0013	U	0.0012	U	0.059	U	0.00085	U	0.042	U
Chloroform	67-66-3			0.2	0.2	mg/kg	0.0013	U	0.0019	U	0.0018	U	0.089	U	0.0013	U	0.063	U
Carbon tetrachloride	56-23-5			5	5	mg/kg	0.00086	U	0.0013	U	0.0012	U	0.059	U	0.00085	U	0.042	U
1,2-Dichloropropane	78-87-5			0.1	0.1	mg/kg	0.00086	U	0.0013	U	0.0012	U	0.059	U	0.00085	U	0.042	U
Dibromochloromethane	124-48-1			0.005	0.005	mg/kg	0.00086	U	0.0013	U	0.0012	U	0.059	U	0.00085	U	0.042	U
1,1,2-Trichloroethane	79-00-5			0.1	0.1	mg/kg	0.00086	U	0.0013	U	0.0012	U	0.059	U	0.00085	U	0.042	U
Tetrachloroethene	127-18-4			1	1	mg/kg	**0.0006**		0.00064	U	0.00058	U	0.03	U	**0.0066**		**1.1**	
Chlorobenzene	108-90-7			1	1	mg/kg	0.00043	U	0.00064	U	0.00058	U	0.03	U	0.00043	U	0.021	U
Trichlorofluoromethane	75-69-4			1000	NS	mg/kg	0.0034	U	0.0051	U	0.0047	U	0.24	U	0.0034	U	0.17	U
1,2-Dichloroethane	107-06-2			0.1	0.1	mg/kg	0.00086	U	0.0013	U	0.0012	U	0.059	U	0.00085	U	0.042	U
1,1,1-Trichloroethane	71-55-6			30	30	mg/kg	0.00043	U	**0.0009**		0.00058	U	0.03	U	**0.002**		0.021	U
Bromodichloromethane	75-27-4			0.1	0.1	mg/kg	0.00043	U	0.00064	U	0.00058	U	0.03	U	0.00043	U	0.021	U
trans-1,3-Dichloropropene	10061-02-6			0.01	NS	mg/kg	0.00086	U	0.0013	U	0.0012	U	0.059	U	0.00085	U	0.042	U
cis-1,3-Dichloropropene	10061-01-5			0.01	NS	mg/kg	0.00043	U	0.00064	U	0.00058	U	0.03	U	0.00043	U	0.021	U
1,3-Dichloropropene, Total	542-75-6			0.01	0.01	mg/kg	0.00043	U	0.00064	U	0.00058	U	0.03	U	0.00043	U	0.021	U
1,1-Dichloropropene	563-58-6				NS	mg/kg	0.00043	U	0.00064	U	0.00058	U	0.03	U	0.00043	U	0.021	U
Bromoform	75-25-2			0.1	0.1	mg/kg	0.0034	U	0.0051	U	0.0047	U	0.24	U	0.0034	U	0.17	U
1,1,2,2-Tetrachloroethane	79-34-5			0.005	0.005	mg/kg	0.00043	U	0.00064	U	0.00058	U	0.03	U	0.00043	U	0.021	U
Benzene	71-43-2			2	2	mg/kg	0.00043	U	0.00064	U	0.00058	U	0.03	U	0.00043	U	0.021	U
Toluene	108-88-3			30	30	mg/kg	0.00086	U	0.0013	U	0.0012	U	0.059	U	0.00085	U	0.042	U
Ethylbenzene	100-41-4			40	40	mg/kg	0.00086	U	0.0013	U	0.0012	U	0.059	U	0.00085	U	0.042	U
Chloromethane	74-87-3			100	NS	mg/kg	0.0034	U	0.0051	U	0.0047	U	0.24	U	0.0034	U	0.17	U
Bromomethane	74-83-9			0.5	0.5	mg/kg	0.0017	U	0.0026	U	0.0023	U	0.12	U	0.0017	U	0.084	U
Vinyl chloride	75-01-4			0.7	0.7	mg/kg	0.00086	U	0.0013	U	0.0012	U	0.059	U	0.00085	U	0.042	U
Chloroethane	75-00-3			100	NS	mg/kg	0.0017	U	0.0026	U	0.0023	U	0.12	U	0.0017	U	0.084	U
1,1-Dichloroethene	75-35-4			3	3	mg/kg	0.00086	U	0.0013	U	0.0012	U	0.059	U	0.00085	U	0.042	U
trans-1,2-Dichloroethene	156-60-5			1	1	mg/kg	0.0013	U	0.0019	U	0.0018	U	0.089	U	0.0013	U	0.063	U
Trichloroethene	79-01-6			0.3	0.3	mg/kg	0.00043	U	0.00064	U	0.00058	U	0.03	U	**0.0007**		**0.03**	
1,2-Dichlorobenzene	95-50-1			9	9	mg/kg	0.0017	U	0.0026	U	0.0023	U	0.12	U	0.0017	U	0.084	U
1,3-Dichlorobenzene	541-73-1			3	3	mg/kg	0.0017	U	0.0026	U	0.0023	U	0.12	U	0.0017	U	0.084	U
1,4-Dichlorobenzene	106-46-7			0.7	0.7	mg/kg	0.0017	U	0.0026	U	0.0023	U	0.12	U	0.0017	U	0.084	U
Methyl tert butyl ether	1634-04-4			0.1	0.1	mg/kg	0.0017	U	0.0026	U	0.0023	U	0.12	U	0.0017	U	0.084	U
p/m-Xylene	179601-23-1			100	100	mg/kg	0.0017	U	0.0026	U	0.0023	U	0.12	U	0.0017	U	0.084	U
o-Xylene	95-47-6			100	100	mg/kg	0.00086	U	0.0013	U	0.0012	U	0.059	U	0.00085	U	0.042	U
Xylenes, Total	1330-20-7			100	100	mg/kg	0.00086	U	0.0013	U	0.0012	U	0.059	U	0.00085	U	0.042	U
cis-1,2-Dichloroethene	156-59-2			0.1	0.1	mg/kg	0.00086	U	0.0013	U	0.0012	U	0.059	U	0.00085	U	0.042	U
1,2-Dichloroethene, Total	540-59-0				NS	mg/kg	0.00086	U	0.0013	U	0.0012	U	0.059	U	0.00085	U	0.042	U
Dibromomethane	74-95-3			500	NS	mg/kg	0.0017	U	0.0026	U	0.0023	U	0.12	U	0.0017	U	0.084	U
1,2,3-Trichloropropane	96-18-4			100	NS	mg/kg	0.0017	U	0.0026	U	0.0023	U	0.12	U	0.0017	U	0.084	U
Styrene	100-42-5			3	3	mg/kg	0.00086	U	0.0013	U	0.0012	U	0.059	U	0.00085	U	0.042	U
Dichlorodifluoromethane	75-71-8			1000	NS	mg/kg	0.0086	U	0.013	U	0.012	U	0.59	U	0.0085	U	0.42	U
Acetone	67-64-1			6	6	mg/kg	**0.23**		**0.052**		**0.032**		0.59	U	**0.049**		0.42	U
Carbon disulfide	75-15-0			100	NS	mg/kg	0.0086	U	0.013	U	0.012	U	0.59	U	0.0085	U	0.42	U
Methyl ethyl ketone	78-93-3			4	4	mg/kg	0.0086	U	0.013	U	0.012	U	0.59	U	0.0085	U	0.42	U
Methyl isobutyl ketone	108-10-1			0.4	0.4	mg/kg	0.0086	U	0.013	U	0.012	U	0.59	U	0.0085	U	0.42	U
2-Hexanone	591-78-6			100	NS	mg/kg	0.0086	U	0.013	U	0.012	U	0.59	U	0.0085	U	0.42	U
Bromochloromethane	74-97-5				NS	mg/kg	0.0017	U	0.0026	U	0.0023	U	0.12	U	0.0017	U	0.084	U
Tetrahydrofuran	109-99-9			500	NS	mg/kg	0.0034	U	0.0051	U	0.0047	U	0.24	U	0.0034	U	0.17	U
2,2-Dichloropropane	594-20-7				NS	mg/kg	0.0017	U	0.0026	U	0.0023	U	0.12	U	0.0017	U	0.084	U
1,2-Dibromoethane	106-93-4			0.1	NS	mg/kg	0.00086	U	0.0013	U	0.0012	U	0.059	U	0.00085	U	0.042	U
1,3-Dichloropropane	142-28-9			500	NS	mg/kg	0.0017	U	0.0026	U	0.0023	U	0.12	U	0.0017	U	0.084	U
1,1,1,2-Tetrachloroethane	630-20-6			0.1	0.1	mg/kg	0.00043	U	0.00064	U	0.00058	U	0.03	U	0.00043	U	0.021	U
Bromobenzene	108-86-1			100	NS	mg/kg	0.0017	U	0.0026	U	0.0023	U	0.12	U	0.0017	U	0.084	U
n-Butylbenzene	104-51-8				NS	mg/kg	0.00086	U	0.0013	U	0.0012	U	0.059	U	0.00085	U	0.042	U
sec-Butylbenzene	135-98-8				NS	mg/kg	0.00086	U	0.0013	U	0.0012	U	0.059	U	0.00085	U	0.042	U
tert-Butylbenzene	98-06-6			100	NS	mg/kg	0.0017	U	0.0026	U	0.0023	U	0.12	U	0.0017	U	0.084	U
o-Chlorotoluene	95-49-8			100	NS	mg/kg	0.0017	U	0.0026	U	0.0023	U	0.12	U	0.0017	U	0.084	U
p-Chlorotoluene	106-43-4				NS	mg/kg	0.0017	U	0.0026	U	0.0023	U	0.12	U	0.0017	U	0.084	U
1,2-Dibromo-3-chloropropane	96-12-8			10	NS	mg/kg	0.0026	U	0.0038	U	0.0035	U	0.18	U	0.0026	U	0.13	U
Hexachlorobutadiene	87-68-3			30	30	mg/kg	0.0034	U	0.0051	U	0.0047	U	0.24	U	0.0034	U	0.17	U
Isopropylbenzene	98-82-8			1000	NS	mg/kg	0.00086	U	0.0013	U	0.0012	U	0.059	U	0.00085	U	0.042	U

Summary of Phase 1 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

	LOCATION							GLX-TPW-306-1		GLX-TPW-307-1.5		GLX-TPW-307-1.5		GLX-TPW-201-1.5		GLX-TPW-201-7		GLX-TPW-308-0.5	
	SAMPLING DATE							5/23/2019		5/23/2019		5/23/2019		5/23/2019		5/23/2019		5/23/2019	
	LAB SAMPLE ID							L1921946-01		L1921946-04		L1921946-04 R1		L1921946-07		L1921946-13		L1921946-16	
	SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	SAMPLE DEPTH (ft.)																		
		CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
MCP Volatile Organics by EPA 5035																			
	p-Isopropyltoluene	99-87-6			100	NS	mg/kg	0.00086	U	0.0013	U	0.0012	U	0.059	U	0.00085	U	0.042	U
	Naphthalene	91-20-3			4	4	mg/kg	0.0034	U	0.0051	U	0.0047	U	0.24	U	0.0034	U	0.17	U
	n-Propylbenzene	103-65-1			100	NS	mg/kg	0.00086	U	0.0013	U	0.0012	U	0.059	U	0.00085	U	0.042	U
	1,2,3-Trichlorobenzene	87-61-6				NS	mg/kg	0.0017	U	0.0026	U	0.0023	U	0.12	U	0.0017	U	0.084	U
	1,2,4-Trichlorobenzene	120-82-1			2	2	mg/kg	0.0017	U	0.0026	U	0.0023	U	0.12	U	0.0017	U	0.084	U
	1,3,5-Trimethylbenzene	108-67-8			10	NS	mg/kg	0.0017	U	0.0026	U	0.0023	U	0.12	U	0.0017	U	0.084	U
	1,2,4-Trimethylbenzene	95-63-6			1000	NS	mg/kg	0.0017	U	0.0026	U	0.0023	U	0.12	U	0.0017	U	0.084	U
	Diethyl ether	60-29-7			100	NS	mg/kg	0.0017	U	0.0026	U	0.0023	U	0.12	U	0.0017	U	0.084	U
	Diisopropyl Ether	108-20-3			100	NS	mg/kg	0.0017	U	0.0026	U	0.0023	U	0.12	U	0.0017	U	0.084	U
	Ethyl-Tert-Butyl-Ether	637-92-3				NS	mg/kg	0.0017	U	0.0026	U	0.0023	U	0.12	U	0.0017	U	0.084	U
	Tertiary-Amyl Methyl Ether	994-05-8				NS	mg/kg	0.0017	U	0.0026	U	0.0023	U	0.12	U	0.0017	U	0.084	U
	1,4-Dioxane	123-91-1			0.2	0.2	mg/kg	0.068	U	0.1	U	0.094	U	4.7	U	0.068	U	3.4	U
	Total VOCs		10	4			mg/kg												

Yellow shading indicates detected result is equal to or above one or more of the listed criteria.
Gray shading indicates nondetect detection limit is above one or more of the listed criteria.
Bold typeface indicates detection above metiond detection limit.

MA-LLAND: Lined Landfill Limits current as of August, 1997
MA-ULAND: UnLined Landfill Limits current as of August, 1997
RCS-1-14: MCP 2014 RCS-1 Reportable Concentrations Criteria effective April 25, 2014.
MCP 2014 S-1 Cleanup Criteria effective April 25, 2014; the lowest S-1/GW-X standard is shown.
**EPA-TCLP: EPA Toxicity Characteristic (TCLP) Regulatory Levels Criteria per 40CFR Part 261 as of September 10, 2015.

U - Not detected at the reported detection limit for the sample.
ND - Not detected.
E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
[1] - The laboratory reported two sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results and lowest detection limits have been tabulated. Refer to laboratory report for further detail.
[2] - The laboratory reported three sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results from the low-level analysis and detection limits from the high-level analysis have been tabulated due to significant internal standard issues with the low-level analysis. Refer to laboratory report for further detail.

Summary of Phase 1 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

LOCATION							GLX-TPW-309-0.5		GLX-TPW-310-0.5		GLX-TPW-311-0.5		GLX-TPW-215-2.5		GLX-TPW-501-4.5		GLX-TPW-502-2.5	
SAMPLING DATE							5/23/2019		5/23/2019		5/23/2019		5/23/2019		5/23/2019		5/23/2019	
LAB SAMPLE ID							L1921946-19		L1921946-22		L1921946-25		L1921946-28		L1921946-31		L1921946-32	
SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)																		
	CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
General Chemistry																		
Solids, Total	NONE					%	94.6		93.3		96.4		92.1		89.4		93.3	
MCP Volatile Organics by EPA 5035																		
Methylene chloride	75-09-2			0.1	NS	mg/kg	0.28	U	0.24	U	0.0035	U	0.0048	U	0.0037	U	0.0042	U
1,1-Dichloroethane	75-34-3			0.4	0.4	mg/kg	0.057	U	0.048	U	0.0007	U	0.00095	U	0.00075	U	0.00085	U
Chloroform	67-66-3			0.2	0.2	mg/kg	0.085	U	0.072	U	0.001	U	0.0014	U	0.0011	U	0.0013	U
Carbon tetrachloride	56-23-5			5	5	mg/kg	0.057	U	0.048	U	0.0007	U	0.00095	U	0.00075	U	0.00085	U
1,2-Dichloropropane	78-87-5			0.1	0.1	mg/kg	0.057	U	0.048	U	0.0007	U	0.00095	U	0.00075	U	0.00085	U
Dibromochloromethane	124-48-1			0.005	0.005	mg/kg	0.057	U	0.048	U	0.0007	U	0.00095	U	0.00075	U	0.00085	U
1,1,2-Trichloroethane	79-00-5			0.1	0.1	mg/kg	0.057	U	0.048	U	0.0007	U	0.00095	U	0.00075	U	0.00085	U
Tetrachloroethene	127-18-4			1	1	mg/kg	**1.9**		**0.43**		0.00035	U	**0.0088**		**0.0011**		**0.00096**	
Chlorobenzene	108-90-7			1	1	mg/kg	0.028	U	0.024	U	0.00035	U	0.00048	U	0.00037	U	0.00042	U
Trichlorofluoromethane	75-69-4			1000	NS	mg/kg	0.23	U	0.19	U	0.0028	U	0.0038	U	0.003	U	0.0034	U
1,2-Dichloroethane	107-06-2			0.1	0.1	mg/kg	0.057	U	0.048	U	0.0007	U	0.00095	U	0.00075	U	0.00085	U
1,1,1-Trichloroethane	71-55-6			30	30	mg/kg	0.028	U	0.024	U	0.00035	U	0.00048	U	**0.0011**		0.0022	
Bromodichloromethane	75-27-4			0.1	0.1	mg/kg	0.028	U	0.024	U	0.00035	U	0.00048	U	0.00037	U	0.00042	U
trans-1,3-Dichloropropene	10061-02-6			0.01	NS	mg/kg	0.057	U	0.048	U	0.0007	U	0.00095	U	0.00075	U	0.00085	U
cis-1,3-Dichloropropene	10061-01-5			0.01	NS	mg/kg	0.028	U	0.024	U	0.00035	U	0.00048	U	0.00037	U	0.00042	U
1,3-Dichloropropene, Total	542-75-6			0.01	0.01	mg/kg	0.028	U	0.024	U	0.00035	U	0.00048	U	0.00037	U	0.00042	U
1,1-Dichloropropene	563-58-6				NS	mg/kg	0.028	U	0.024	U	0.00035	U	0.00048	U	0.00037	U	0.00042	U
Bromoform	75-25-2			0.1	0.1	mg/kg	0.23	U	0.19	U	0.0028	U	0.0038	U	0.003	U	0.0034	U
1,1,2,2-Tetrachloroethane	79-34-5			0.005	0.005	mg/kg	0.028	U	0.024	U	0.00035	U	0.00048	U	0.00037	U	0.00042	U
Benzene	71-43-2			2	2	mg/kg	0.028	U	0.024	U	0.00035	U	0.00048	U	0.00037	U	0.00042	U
Toluene	108-88-3			30	30	mg/kg	0.057	U	0.048	U	0.0007	U	0.00095	U	**0.0018**		0.00085	U
Ethylbenzene	100-41-4			40	40	mg/kg	0.057	U	0.048	U	0.0007	U	0.00095	U	0.00075	U	0.00085	U
Chloromethane	74-87-3			100	NS	mg/kg	0.23	U	0.19	U	0.0028	U	0.0038	U	0.003	U	0.0034	U
Bromomethane	74-83-9			0.5	0.5	mg/kg	0.11	U	0.096	U	0.0014	U	0.0019	U	0.0015	U	0.0017	U
Vinyl chloride	75-01-4			0.7	0.7	mg/kg	0.057	U	0.048	U	0.0007	U	0.00095	U	0.00075	U	0.00085	U
Chloroethane	75-00-3			100	NS	mg/kg	0.11	U	0.096	U	0.0014	U	0.0019	U	0.0015	U	0.0017	U
1,1-Dichloroethene	75-35-4			3	3	mg/kg	0.057	U	0.048	U	0.0007	U	0.00095	U	0.00075	U	0.00085	U
trans-1,2-Dichloroethene	156-60-5			1	1	mg/kg	0.085	U	0.072	U	0.001	U	0.0014	U	0.0011	U	0.0013	U
Trichloroethene	79-01-6			0.3	0.3	mg/kg	**0.052**		0.024	U	0.00035	U	**0.0007**		**0.0013**		**0.0012**	
1,2-Dichlorobenzene	95-50-1			9	9	mg/kg	0.11	U	0.096	U	0.0014	U	0.0019	U	0.0015	U	0.0017	U
1,3-Dichlorobenzene	541-73-1			3	3	mg/kg	0.11	U	0.096	U	0.0014	U	0.0019	U	0.0015	U	0.0017	U
1,4-Dichlorobenzene	106-46-7			0.7	0.7	mg/kg	0.11	U	0.096	U	0.0014	U	0.0019	U	0.0015	U	0.0017	U
Methyl tert butyl ether	1634-04-4			0.1	0.1	mg/kg	0.11	U	0.096	U	0.0014	U	0.0019	U	0.0015	U	0.0017	U
p/m-Xylene	179601-23-1			100	100	mg/kg	0.11	U	0.096	U	0.0014	U	0.0019	U	0.0015	U	0.0017	U
o-Xylene	95-47-6			100	100	mg/kg	0.057	U	0.048	U	0.0007	U	0.00095	U	0.00075	U	0.00085	U
Xylenes, Total	1330-20-7			100	100	mg/kg	0.057	U	0.048	U	0.0007	U	0.00095	U	0.00075	U	0.00085	U
cis-1,2-Dichloroethene	156-59-2			0.1	0.1	mg/kg	0.057	U	0.048	U	0.0007	U	0.00095	U	0.00075	U	0.00085	U
1,2-Dichloroethene, Total	540-59-0				NS	mg/kg	0.057	U	0.048	U	0.0007	U	0.00095	U	0.00075	U	0.00085	U
Dibromomethane	74-95-3			500	NS	mg/kg	0.11	U	0.096	U	0.0014	U	0.0019	U	0.0015	U	0.0017	U
1,2,3-Trichloropropane	96-18-4			100	NS	mg/kg	0.11	U	0.096	U	0.0014	U	0.0019	U	0.0015	U	0.0017	U
Styrene	100-42-5			3	3	mg/kg	0.057	U	0.048	U	0.0007	U	0.00095	U	0.00075	U	0.00085	U
Dichlorodifluoromethane	75-71-8			1000	NS	mg/kg	0.57	U	0.48	U	0.007	U	0.0095	U	0.0075	U	0.0085	U
Acetone	67-64-1			6	6	mg/kg	0.57	U	0.48	U	0.24	E	**0.023**		**0.033**		**0.015**	
Carbon disulfide	75-15-0			100	NS	mg/kg	0.57	U	0.48	U	0.007	U	0.0095	U	0.0075	U	0.0085	U
Methyl ethyl ketone	78-93-3			4	4	mg/kg	0.57	U	0.48	U	0.007	U	0.0095	U	0.0075	U	0.0085	U
Methyl isobutyl ketone	108-10-1			0.4	0.4	mg/kg	0.57	U	0.48	U	0.007	U	0.0095	U	0.0075	U	0.0085	U
2-Hexanone	591-78-6			100	NS	mg/kg	0.57	U	0.48	U	0.007	U	0.0095	U	0.0075	U	0.0085	U
Bromochloromethane	74-97-5				NS	mg/kg	0.11	U	0.096	U	0.0014	U	0.0019	U	0.0015	U	0.0017	U
Tetrahydrofuran	109-99-9			500	NS	mg/kg	0.23	U	0.19	U	0.0028	U	0.0038	U	0.003	U	0.0034	U
2,2-Dichloropropane	594-20-7				NS	mg/kg	0.11	U	0.096	U	0.0014	U	0.0019	U	0.0015	U	0.0017	U
1,2-Dibromoethane	106-93-4			0.1	NS	mg/kg	0.057	U	0.048	U	0.0007	U	0.00095	U	0.00075	U	0.00085	U
1,3-Dichloropropane	142-28-9			500	NS	mg/kg	0.11	U	0.096	U	0.0014	U	0.0019	U	0.0015	U	0.0017	U
1,1,1,2-Tetrachloroethane	630-20-6			0.1	0.1	mg/kg	0.028	U	0.024	U	0.00035	U	0.00048	U	0.00037	U	0.00042	U
Bromobenzene	108-86-1			100	NS	mg/kg	0.11	U	0.096	U	0.0014	U	0.0019	U	0.0015	U	0.0017	U
n-Butylbenzene	104-51-8				NS	mg/kg	0.057	U	0.048	U	0.0007	U	0.00095	U	0.00075	U	0.00085	U
sec-Butylbenzene	135-98-8				NS	mg/kg	0.057	U	0.048	U	0.0007	U	0.00095	U	0.00075	U	0.00085	U
tert-Butylbenzene	98-06-6			100	NS	mg/kg	0.11	U	0.096	U	0.0014	U	0.0019	U	0.0015	U	0.0017	U
o-Chlorotoluene	95-49-8			100	NS	mg/kg	0.11	U	0.096	U	0.0014	U	0.0019	U	0.0015	U	0.0017	U
p-Chlorotoluene	106-43-4				NS	mg/kg	0.11	U	0.096	U	0.0014	U	0.0019	U	0.0015	U	0.0017	U
1,2-Dibromo-3-chloropropane	96-12-8			10	NS	mg/kg	0.17	U	0.14	U	0.0021	U	0.0029	U	0.0022	U	0.0026	U
Hexachlorobutadiene	87-68-3			30	30	mg/kg	0.23	U	0.19	U	0.0028	U	0.0038	U	0.003	U	0.0034	U
Isopropylbenzene	98-82-8			1000	NS	mg/kg	0.057	U	0.048	U	0.0007	U	0.00095	U	0.00075	U	0.00085	U

Summary of Phase 1 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

LOCATION							GLX-TPW-309-0.5		GLX-TPW-310-0.5		GLX-TPW-311-0.5		GLX-TPW-215-2.5		GLX-TPW-501-4.5		GLX-TPW-502-2.5	
SAMPLING DATE							5/23/2019		5/23/2019		5/23/2019		5/23/2019		5/23/2019		5/23/2019	
LAB SAMPLE ID							L1921946-19		L1921946-22		L1921946-25		L1921946-28		L1921946-31		L1921946-32	
SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)																		
	CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
MCP Volatile Organics by EPA 5035																		
p-Isopropyltoluene	99-87-6			100	NS	mg/kg	0.057	U	0.048	U	0.0007	U	0.00095	U	0.00075	U	0.00085	U
Naphthalene	91-20-3			4	4	mg/kg	0.23	U	0.19	U	0.0028	U	0.0038	U	0.003	U	0.0034	U
n-Propylbenzene	103-65-1			100	NS	mg/kg	0.057	U	0.048	U	0.0007	U	0.00095	U	0.00075	U	0.00085	U
1,2,3-Trichlorobenzene	87-61-6				NS	mg/kg	0.11	U	0.096	U	0.0014	U	0.0019	U	0.0015	U	0.0017	U
1,2,4-Trichlorobenzene	120-82-1			2	2	mg/kg	0.11	U	0.096	U	0.0014	U	0.0019	U	0.0015	U	0.0017	U
1,3,5-Trimethylbenzene	108-67-8			10	NS	mg/kg	0.11	U	0.096	U	0.0014	U	0.0019	U	0.0015	U	0.0017	U
1,2,4-Trimethylbenzene	95-63-6			1000	NS	mg/kg	0.11	U	0.096	U	0.0014	U	0.0019	U	0.0015	U	0.0017	U
Diethyl ether	60-29-7			100	NS	mg/kg	0.11	U	0.096	U	0.0014	U	0.0019	U	0.0015	U	0.0017	U
Diisopropyl Ether	108-20-3			100	NS	mg/kg	0.11	U	0.096	U	0.0014	U	0.0019	U	0.0015	U	0.0017	U
Ethyl-Tert-Butyl-Ether	637-92-3				NS	mg/kg	0.11	U	0.096	U	0.0014	U	0.0019	U	0.0015	U	0.0017	U
Tertiary-Amyl Methyl Ether	994-05-8				NS	mg/kg	0.11	U	0.096	U	0.0014	U	0.0019	U	0.0015	U	0.0017	U
1,4-Dioxane	123-91-1			0.2	0.2	mg/kg	4.5	U	3.8	U	0.056	U	0.076	U	0.06	U	0.068	U
Total VOCs		10	4			mg/kg												

Yellow shading indicates detected result is equal to or above one or more of the listed criteria.
Gray shading indicates nondetect detection limit is above one or more of the listed criteria.
Bold typeface indicates detection above metiond detection limit.

MA-LLAND: Lined Landfill Limits current as of August, 1997
MA-ULAND: UnLined Landfill Limits current as of August, 1997
RCS-1-14: MCP 2014 RCS-1 Reportable Concentrations Criteria effective April 25, 2014.
MCP 2014 S-1 Cleanup Criteria effective April 25, 2014; the lowest S-1/GW-X standard is shown.
**EPA-TCLP: EPA Toxicity Characteristic (TCLP) Regulatory Levels Criteria per 40CFR Part 261 as of September 10, 2015.

U - Not detected at the reported detection limit for the sample.
ND - Not detected.
E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
[1] - The laboratory reported two sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results and lowest detection limits have been tabulated. Refer to laboratory report for further detail.
[2] - The laboratory reported three sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results from the low-level analysis and detection limits from the high-level analysis have been tabulated due to significant internal standard issues with the low-level analysis. Refer to laboratory report for further detail.

Summary of Phase 1 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

															RAM PLAN						
	LOCATION							**GLX-TPW-214-3.5**		**GLX-TPW-212-3.5'**		**GLX-TPW-204-6'**		**GLX-TPW-213-4.5'**		**GLX-TPW-312-0.5'**		**GLX-TPW-203-6'**	
	SAMPLING DATE							**5/23/2019**		**5/24/2019**		**5/24/2019**		**5/24/2019**		**5/24/2019**		**5/24/2019**	
	LAB SAMPLE ID							**L1921946-33**		**L1922181-03**		**L1922181-09**		**L1922181-12**		**L1922181-15**		**L1922181-21**	
	SAMPLE TYPE							**SOIL**		**SOIL**		**SOIL**		**SOIL**		**SOIL**		**SOIL**	
	SAMPLE DEPTH (ft.)																		
		CasNum	**MA-LLAND**	**MA-ULAND**	**RCS-1-14**	**S-1**	**Units**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**
General Chemistry																			
	Solids, Total	NONE					%	91.8		89.6		91.7		90.8		91.8		94.1	
MCP Volatile Organics by EPA 5035																			
	Methylene chloride	75-09-2			0.1	NS	mg/kg	0.22	U	0.0041	U	0.0048	U	0.54	U	0.21	U	0.0049	U
	1,1-Dichloroethane	75-34-3			0.4	0.4	mg/kg	0.044	U	0.00082	U	0.00097	U	0.11	U	0.043	U	0.00098	U
	Chloroform	67-66-3			0.2	0.2	mg/kg	0.066	U	0.0012	U	0.0014	U	0.16	U	0.064	U	0.0015	U
	Carbon tetrachloride	56-23-5			5	5	mg/kg	0.044	U	0.00082	U	0.00097	U	0.11	U	0.043	U	0.00098	U
	1,2-Dichloropropane	78-87-5			0.1	0.1	mg/kg	0.044	U	0.00082	U	0.00097	U	0.11	U	0.043	U	0.00098	U
	Dibromochloromethane	124-48-1			0.005	0.005	mg/kg	0.044	U	0.00082	U	0.00097	U	0.11	U	0.043	U	0.00098	U
	1,1,2-Trichloroethane	79-00-5			0.1	0.1	mg/kg	0.044	U	0.00082	U	0.00097	U	0.11	U	0.043	U	0.00098	U
	Tetrachloroethene	127-18-4			1	1	mg/kg	**7.9**		**0.001**		**0.016**		**14**		**1**		**0.0016**	
	Chlorobenzene	108-90-7			1	1	mg/kg	0.022	U	0.00041	U	0.00048	U	0.054	U	0.021	U	0.00049	U
	Trichlorofluoromethane	75-69-4			1000	NS	mg/kg	0.18	U	0.0033	U	0.0039	U	0.44	U	0.17	U	0.0039	U
	1,2-Dichloroethane	107-06-2			0.1	0.1	mg/kg	0.044	U	0.00082	U	0.00097	U	0.11	U	0.043	U	0.00098	U
	1,1,1-Trichloroethane	71-55-6			30	30	mg/kg	**0.17**		0.00041	U	**0.0023**		**0.21**		0.021	U	0.00049	U
	Bromodichloromethane	75-27-4			0.1	0.1	mg/kg	0.022	U	0.00041	U	0.00048	U	0.054	U	0.021	U	0.00049	U
	trans-1,3-Dichloropropene	10061-02-6			0.01	NS	mg/kg	0.044	U	0.00082	U	0.00097	U	0.11	U	0.043	U	0.00098	U
	cis-1,3-Dichloropropene	10061-01-5			0.01	NS	mg/kg	0.022	U	0.00041	U	0.00048	U	0.054	U	0.021	U	0.00049	U
	1,3-Dichloropropene, Total	542-75-6			0.01	0.01	mg/kg	0.022	U	0.00041	U	0.00048	U	0.054	U	0.021	U	0.00049	U
	1,1-Dichloropropene	563-58-6				NS	mg/kg	0.022	U	0.00041	U	0.00048	U	0.054	U	0.021	U	0.00049	U
	Bromoform	75-25-2			0.1	0.1	mg/kg	0.18	U	0.0033	U	0.0039	U	0.44	U	0.17	U	0.0039	U
	1,1,2,2-Tetrachloroethane	79-34-5			0.005	0.005	mg/kg	0.022	U	0.00041	U	0.00048	U	0.054	U	0.021	U	0.00049	U
	Benzene	71-43-2			2	2	mg/kg	0.022	U	**0.0006**		0.00048	U	0.054	U	0.021	U	0.00049	U
	Toluene	108-88-3			30	30	mg/kg	0.044	U	0.00082	U	**0.0015**		0.11	U	0.043	U	0.00098	U
	Ethylbenzene	100-41-4			40	40	mg/kg	0.044	U	0.00082	U	0.00097	U	0.11	U	0.043	U	0.00098	U
	Chloromethane	74-87-3			100	NS	mg/kg	0.18	U	0.0033	U	0.0039	U	0.44	U	0.17	U	0.0039	U
	Bromomethane	74-83-9			0.5	0.5	mg/kg	0.089	U	0.0016	U	0.0019	U	0.22	U	0.086	U	0.002	U
	Vinyl chloride	75-01-4			0.7	0.7	mg/kg	0.044	U	0.00082	U	0.00097	U	0.11	U	0.043	U	0.00098	U
	Chloroethane	75-00-3			100	NS	mg/kg	0.089	U	0.0016	U	0.0019	U	0.22	U	0.086	U	0.002	U
	1,1-Dichloroethene	75-35-4			3	3	mg/kg	0.044	U	0.00082	U	0.00097	U	0.11	U	0.043	U	0.00098	U
	trans-1,2-Dichloroethene	156-60-5			1	1	mg/kg	0.066	U	0.0012	U	0.0014	U	0.16	U	0.064	U	0.0015	U
	Trichloroethene	79-01-6			0.3	0.3	mg/kg	**0.16**		**0.0012**		**0.0014**		**0.58**		0.021	U	0.00049	U
	1,2-Dichlorobenzene	95-50-1			9	9	mg/kg	0.089	U	0.0016	U	0.0019	U	0.22	U	0.086	U	0.002	U
	1,3-Dichlorobenzene	541-73-1			3	3	mg/kg	0.089	U	0.0016	U	0.0019	U	0.22	U	0.086	U	0.002	U
	1,4-Dichlorobenzene	106-46-7			0.7	0.7	mg/kg	0.089	U	0.0016	U	0.0019	U	0.22	U	0.086	U	0.002	U
	Methyl tert butyl ether	1634-04-4			0.1	0.1	mg/kg	0.089	U	0.0016	U	0.0019	U	0.22	U	0.086	U	0.002	U
	p/m-Xylene	179601-23-1			100	100	mg/kg	0.089	U	0.0016	U	0.0019	U	0.22	U	0.086	U	0.002	U
	o-Xylene	95-47-6			100	100	mg/kg	0.044	U	0.00082	U	0.00097	U	0.11	U	0.043	U	0.00098	U
	Xylenes, Total	1330-20-7			100	100	mg/kg	0.044	U	0.00082	U	0.00097	U	0.11	U	0.043	U	0.00098	U
	cis-1,2-Dichloroethene	156-59-2			0.1	0.1	mg/kg	0.044	U	**0.0034**		0.00097	U	0.11	U	0.043	U	0.00098	U
	1,2-Dichloroethene, Total	540-59-0				NS	mg/kg	0.044	U	**0.0034**		0.00097	U	0.11	U	0.043	U	0.00098	U
	Dibromomethane	74-95-3			500	NS	mg/kg	0.089	U	0.0016	U	0.0019	U	0.22	U	0.086	U	0.002	U
	1,2,3-Trichloropropane	96-18-4			100	NS	mg/kg	0.089	U	0.0016	U	0.0019	U	0.22	U	0.086	U	0.002	U
	Styrene	100-42-5			3	3	mg/kg	0.044	U	0.00082	U	0.00097	U	0.11	U	0.043	U	0.00098	U
	Dichlorodifluoromethane	75-71-8			1000	NS	mg/kg	0.44	U	0.0082	U	0.0097	U	1.1	U	0.43	U	0.0098	U
	Acetone	67-64-1			6	6	mg/kg	0.44	U	**0.028**		**0.039**		1.1	U	0.43	U	**0.027**	
	Carbon disulfide	75-15-0			100	NS	mg/kg	0.44	U	0.0082	U	0.0097	U	1.1	U	0.43	U	0.0098	U
	Methyl ethyl ketone	78-93-3			4	4	mg/kg	0.44	U	0.0082	U	0.0097	U	1.1	U	0.43	U	0.0098	U
	Methyl isobutyl ketone	108-10-1			0.4	0.4	mg/kg	0.44	U	0.0082	U	0.0097	U	1.1	U	0.43	U	0.0098	U
	2-Hexanone	591-78-6			100	NS	mg/kg	0.44	U	0.0082	U	0.0097	U	1.1	U	0.43	U	0.0098	U
	Bromochloromethane	74-97-5				NS	mg/kg	0.089	U	0.0016	U	0.0019	U	0.22	U	0.086	U	0.002	U
	Tetrahydrofuran	109-99-9			500	NS	mg/kg	0.18	U	0.0033	U	0.0039	U	0.44	U	0.17	U	0.0039	U
	2,2-Dichloropropane	594-20-7				NS	mg/kg	0.089	U	0.0016	U	0.0019	U	0.22	U	0.086	U	0.002	U
	1,2-Dibromoethane	106-93-4			0.1	NS	mg/kg	0.044	U	0.00082	U	0.00097	U	0.11	U	0.043	U	0.00098	U
	1,3-Dichloropropane	142-28-9			500	NS	mg/kg	0.089	U	0.0016	U	0.0019	U	0.22	U	0.086	U	0.002	U
	1,1,1,2-Tetrachloroethane	630-20-6			0.1	0.1	mg/kg	0.022	U	0.00041	U	0.00048	U	0.054	U	0.021	U	0.00049	U
	Bromobenzene	108-86-1			100	NS	mg/kg	0.089	U	0.0016	U	0.0019	U	0.22	U	0.086	U	0.002	U
	n-Butylbenzene	104-51-8				NS	mg/kg	0.044	U	0.00082	U	0.00097	U	0.11	U	0.043	U	0.00098	U
	sec-Butylbenzene	135-98-8				NS	mg/kg	0.044	U	0.00082	U	0.00097	U	0.11	U	0.043	U	0.00098	U
	tert-Butylbenzene	98-06-6			100	NS	mg/kg	0.089	U	0.0016	U	0.0019	U	0.22	U	0.086	U	0.002	U
	o-Chlorotoluene	95-49-8			100	NS	mg/kg	0.089	U	0.0016	U	0.0019	U	0.22	U	0.086	U	0.002	U
	p-Chlorotoluene	106-43-4				NS	mg/kg	0.089	U	0.0016	U	0.0019	U	0.22	U	0.086	U	0.002	U
	1,2-Dibromo-3-chloropropane	96-12-8			10	NS	mg/kg	0.13	U	0.0025	U	0.0029	U	0.33	U	0.13	U	0.0029	U
	Hexachlorobutadiene	87-68-3			30	30	mg/kg	0.18	U	0.0033	U	0.0039	U	0.44	U	0.17	U	0.0039	U
	Isopropylbenzene	98-82-8			1000	NS	mg/kg	0.044	U	0.00082	U	0.00097	U	0.11	U	0.043	U	0.00098	U

Summary of Phase 1 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

								RAM PLAN											
	LOCATION							**GLX-TPW-214-3.5**		**GLX-TPW-212-3.5'**		**GLX-TPW-204-6'**		**GLX-TPW-213-4.5'**		**GLX-TPW-312-0.5'**		**GLX-TPW-203-6'**	
	SAMPLING DATE							**5/23/2019**		**5/24/2019**		**5/24/2019**		**5/24/2019**		**5/24/2019**		**5/24/2019**	
	LAB SAMPLE ID							**L1921946-33**		**L1922181-03**		**L1922181-09**		**L1922181-12**		**L1922181-15**		**L1922181-21**	
	SAMPLE TYPE							**SOIL**		**SOIL**		**SOIL**		**SOIL**		**SOIL**		**SOIL**	
	SAMPLE DEPTH (ft.)																		
		CasNum	**MA-LLAND**	**MA-ULAND**	**RCS-1-14**	**S-1**	**Units**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**
MCP Volatile Organics by EPA 5035																			
	p-Isopropyltoluene	99-87-6			100	NS	mg/kg	0.044	U	0.00082	U	0.00097	U	0.11	U	0.043	U	0.00098	U
	Naphthalene	91-20-3			4	4	mg/kg	0.18	U	0.0033	U	0.0039	U	0.44	U	0.17	U	0.0039	U
	n-Propylbenzene	103-65-1			100	NS	mg/kg	0.044	U	0.00082	U	0.00097	U	0.11	U	0.043	U	0.00098	U
	1,2,3-Trichlorobenzene	87-61-6				NS	mg/kg	0.089	U	0.0016	U	0.0019	U	0.22	U	0.086	U	0.002	U
	1,2,4-Trichlorobenzene	120-82-1			2	2	mg/kg	0.089	U	0.0016	U	0.0019	U	0.22	U	0.086	U	0.002	U
	1,3,5-Trimethylbenzene	108-67-8			10	NS	mg/kg	0.089	U	0.0016	U	0.0019	U	0.22	U	0.086	U	0.002	U
	1,2,4-Trimethylbenzene	95-63-6			1000	NS	mg/kg	0.089	U	0.0016	U	0.0019	U	0.22	U	0.086	U	0.002	U
	Diethyl ether	60-29-7			100	NS	mg/kg	0.089	U	0.0016	U	0.0019	U	0.22	U	0.086	U	0.002	U
	Diisopropyl Ether	108-20-3			100	NS	mg/kg	0.089	U	0.0016	U	0.0019	U	0.22	U	0.086	U	0.002	U
	Ethyl-Tert-Butyl-Ether	637-92-3				NS	mg/kg	0.089	U	0.0016	U	0.0019	U	0.22	U	0.086	U	0.002	U
	Tertiary-Amyl Methyl Ether	994-05-8				NS	mg/kg	0.089	U	0.0016	U	0.0019	U	0.22	U	0.086	U	0.002	U
	1,4-Dioxane	123-91-1			0.2	0.2	mg/kg	3.5	U	0.066	U	0.078	U	8.7	U	3.4	U	0.078	U
	Total VOCs		10	4			mg/kg												

Yellow shading indicates detected result is equal to or above one or more of the listed criteria.
Gray shading indicates nondetect detection limit is above one or more of the listed criteria.
Bold typeface indicates detection above metiond detection limit.

MA-LLAND: Lined Landfill Limits current as of August, 1997
MA-ULAND: UnLined Landfill Limits current as of August, 1997
RCS-1-14: MCP 2014 RCS-1 Reportable Concentrations Criteria effective April 25, 2014.
MCP 2014 S-1 Cleanup Criteria effective April 25, 2014; the lowest S-1/GW-X standard is shown.
**EPA-TCLP: EPA Toxicity Characteristic (TCLP) Regulatory Levels Criteria per 40CFR Part 261 as of September 10, 2015.

U - Not detected at the reported detection limit for the sample.
ND - Not detected.
E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
[1] - The laboratory reported two sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results and lowest detection limits have been tabulated. Refer to laboratory report for further detail.
[2] - The laboratory reported three sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results from the low-level analysis and detection limits from the high-level analysis have been tabulated due to significant internal standard issues with the low-level analysis. Refer to laboratory report for further detail.

Summary of Phase 1 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

LOCATION							GLX-TPW-305-0.5'		GLX-TPW-205-8'		GLX-TPW-201-5		GLX-TPW-204-4.5'		GLX-TPW-203-4.5'		GLX-TPW-205-3.5'	
SAMPLING DATE							5/24/2019		5/24/2019		5/23/2019		5/24/2019		5/24/2019		5/24/2019	
LAB SAMPLE ID							L1922181-29		L1922181-30		L1922758-01		L1922773-01		L1922773-02		L1922773-03	
SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)																		
	CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
General Chemistry																		
Solids, Total	NONE					%	95.8		95		80.2		93.5		92.2		95.8	
MCP Volatile Organics by EPA 5035																		
Methylene chloride	75-09-2			0.1	NS	mg/kg	0.0045	U	0.0044	U	0.0032	U	0.0045	U	0.0042	U	0.0035	U
1,1-Dichloroethane	75-34-3			0.4	0.4	mg/kg	0.0009	U	0.00089	U	0.00064	U	0.00091	U	0.00083	U	0.00071	U
Chloroform	67-66-3			0.2	0.2	mg/kg	0.0013	U	0.0013	U	0.00096	U	0.0014	U	0.0012	U	0.0011	U
Carbon tetrachloride	56-23-5			5	5	mg/kg	0.0009	U	0.00089	U	0.00064	U	0.00091	U	0.00083	U	0.00071	U
1,2-Dichloropropane	78-87-5			0.1	0.1	mg/kg	0.0009	U	0.00089	U	0.00064	U	0.00091	U	0.00083	U	0.00071	U
Dibromochloromethane	124-48-1			0.005	0.005	mg/kg	0.0009	U	0.00089	U	0.00064	U	0.00091	U	0.00083	U	0.00071	U
1,1,2-Trichloroethane	79-00-5			0.1	0.1	mg/kg	0.0009	U	0.00089	U	0.00064	U	0.00091	U	0.00083	U	0.00071	U
Tetrachloroethene	127-18-4			1	1	mg/kg	0.00045	U	**0.006**		0.00032	U	**0.0094**		**0.00042**		**0.0057**	
Chlorobenzene	108-90-7			1	1	mg/kg	0.00045	U	0.00044	U	0.00032	U	0.00045	U	0.00042	U	0.00035	U
Trichlorofluoromethane	75-69-4			1000	NS	mg/kg	0.0036	U	0.0036	U	0.0026	U	0.0036	U	0.0033	U	0.0028	U
1,2-Dichloroethane	107-06-2			0.1	0.1	mg/kg	0.0009	U	0.00089	U	0.00064	U	0.00091	U	0.00083	U	0.00071	U
1,1,1-Trichloroethane	71-55-6			30	30	mg/kg	0.00045	U	0.00044	U	0.00032	U	**0.0018**		0.00042	U	0.00035	U
Bromodichloromethane	75-27-4			0.1	0.1	mg/kg	0.00045	U	0.00044	U	0.00032	U	0.00045	U	0.00042	U	0.00035	U
trans-1,3-Dichloropropene	10061-02-6			0.01	NS	mg/kg	0.0009	U	0.00089	U	0.00064	U	0.00091	U	0.00083	U	0.00071	U
cis-1,3-Dichloropropene	10061-01-5			0.01	NS	mg/kg	0.00045	U	0.00044	U	0.00032	U	0.00045	U	0.00042	U	0.00035	U
1,3-Dichloropropene, Total	542-75-6			0.01	0.01	mg/kg	0.00045	U	0.00044	U	0.00032	U	0.00045	U	0.00042	U	0.00035	U
1,1-Dichloropropene	563-58-6				NS	mg/kg	0.00045	U	0.00044	U	0.00032	U	0.00045	U	0.00042	U	0.00035	U
Bromoform	75-25-2			0.1	0.1	mg/kg	0.0036	U	0.0036	U	0.0026	U	0.0036	U	0.0033	U	0.0028	U
1,1,2,2-Tetrachloroethane	79-34-5			0.005	0.005	mg/kg	0.00045	U	0.00044	U	0.00032	U	0.00045	U	0.00042	U	0.00035	U
Benzene	71-43-2			2	2	mg/kg	0.00045	U	0.00044	U	0.00032	U	0.00045	U	0.00042	U	0.00035	U
Toluene	108-88-3			30	30	mg/kg	**0.00099**		**0.0014**		0.00064	U	0.00091	U	0.00083	U	**0.0011**	
Ethylbenzene	100-41-4			40	40	mg/kg	0.0009	U	0.00089	U	0.00064	U	0.00091	U	0.00083	U	0.00071	U
Chloromethane	74-87-3			100	NS	mg/kg	0.0036	U	0.0036	U	0.0026	U	0.0036	U	0.0033	U	0.0028	U
Bromomethane	74-83-9			0.5	0.5	mg/kg	0.0018	U	0.0018	U	0.0013	U	0.0018	U	0.0017	U	0.0014	U
Vinyl chloride	75-01-4			0.7	0.7	mg/kg	0.0009	U	0.00089	U	0.00064	U	0.00091	U	0.00083	U	0.00071	U
Chloroethane	75-00-3			100	NS	mg/kg	0.0018	U	0.0018	U	0.0013	U	0.0018	U	0.0017	U	0.0014	U
1,1-Dichloroethene	75-35-4			3	3	mg/kg	0.0009	U	0.00089	U	0.00064	U	0.00091	U	0.00083	U	0.00071	U
trans-1,2-Dichloroethene	156-60-5			1	1	mg/kg	0.0013	U	0.0013	U	0.00096	U	0.0014	U	0.0012	U	0.0011	U
Trichloroethene	79-01-6			0.3	0.3	mg/kg	0.00045	U	**0.00057**		0.00032	U	**0.00098**		0.00042	U	**0.00056**	
1,2-Dichlorobenzene	95-50-1			9	9	mg/kg	0.0018	U	0.0018	U	0.0013	U	0.0018	U	0.0017	U	0.0014	U
1,3-Dichlorobenzene	541-73-1			3	3	mg/kg	0.0018	U	0.0018	U	0.0013	U	0.0018	U	0.0017	U	0.0014	U
1,4-Dichlorobenzene	106-46-7			0.7	0.7	mg/kg	0.0018	U	0.0018	U	0.0013	U	0.0018	U	0.0017	U	0.0014	U
Methyl tert butyl ether	1634-04-4			0.1	0.1	mg/kg	0.0018	U	0.0018	U	0.0013	U	0.0018	U	0.0017	U	0.0014	U
p/m-Xylene	179601-23-1			100	100	mg/kg	0.0018	U	0.0018	U	0.0013	U	0.0018	U	0.0017	U	0.0014	U
o-Xylene	95-47-6			100	100	mg/kg	0.0009	U	0.00089	U	0.00064	U	0.00091	U	0.00083	U	0.00071	U
Xylenes, Total	1330-20-7			100	100	mg/kg	0.0009	U	0.00089	U	0.00064	U	0.00091	U	0.00083	U	0.00071	U
cis-1,2-Dichloroethene	156-59-2			0.1	0.1	mg/kg	0.0009	U	0.00089	U	0.00064	U	0.00091	U	0.00083	U	0.00071	U
1,2-Dichloroethene, Total	540-59-0				NS	mg/kg	0.0009	U	0.00089	U	0.00064	U	0.00091	U	0.00083	U	0.00071	U
Dibromomethane	74-95-3			500	NS	mg/kg	0.0018	U	0.0018	U	0.0013	U	0.0018	U	0.0017	U	0.0014	U
1,2,3-Trichloropropane	96-18-4			100	NS	mg/kg	0.0018	U	0.0018	U	0.0013	U	0.0018	U	0.0017	U	0.0014	U
Styrene	100-42-5			3	3	mg/kg	0.0009	U	0.00089	U	0.00064	U	0.00091	U	0.00083	U	0.00071	U
Dichlorodifluoromethane	75-71-8			1000	NS	mg/kg	0.009	U	0.0089	U	0.0064	U	0.0091	U	0.0083	U	0.0071	U
Acetone	67-64-1			6	6	mg/kg	0.33	E	**0.049**		**0.032**		**0.017**		**0.017**		**0.15**	
Carbon disulfide	75-15-0			100	NS	mg/kg	0.009	U	0.0089	U	0.0064	U	0.0091	U	0.0083	U	0.0071	U
Methyl ethyl ketone	78-93-3			4	4	mg/kg	**0.016**		0.0089	U	0.0064	U	0.0091	U	0.0083	U	0.0071	U
Methyl isobutyl ketone	108-10-1			0.4	0.4	mg/kg	0.009	U	0.0089	U	0.0064	U	0.0091	U	0.0083	U	0.0071	U
2-Hexanone	591-78-6			100	NS	mg/kg	0.009	U	0.0089	U	0.0064	U	0.0091	U	0.0083	U	0.0071	U
Bromochloromethane	74-97-5				NS	mg/kg	0.0018	U	0.0018	U	0.0013	U	0.0018	U	0.0017	U	0.0014	U
Tetrahydrofuran	109-99-9			500	NS	mg/kg	0.42	E	0.0036	U	0.0026	U	0.0036	U	0.0033	U	0.0028	U
2,2-Dichloropropane	594-20-7				NS	mg/kg	0.0018	U	0.0018	U	0.0013	U	0.0018	U	0.0017	U	0.0014	U
1,2-Dibromoethane	106-93-4			0.1	NS	mg/kg	0.0009	U	0.00089	U	0.00064	U	0.00091	U	0.00083	U	0.00071	U
1,3-Dichloropropane	142-28-9			500	NS	mg/kg	0.0018	U	0.0018	U	0.0013	U	0.0018	U	0.0017	U	0.0014	U
1,1,1,2-Tetrachloroethane	630-20-6			0.1	0.1	mg/kg	0.00045	U	0.00044	U	0.00032	U	0.00045	U	0.00042	U	0.00035	U
Bromobenzene	108-86-1			100	NS	mg/kg	0.0018	U	0.0018	U	0.0013	U	0.0018	U	0.0017	U	0.0014	U
n-Butylbenzene	104-51-8				NS	mg/kg	0.0009	U	0.00089	U	0.00064	U	0.00091	U	0.00083	U	0.00071	U
sec-Butylbenzene	135-98-8				NS	mg/kg	0.0009	U	0.00089	U	0.00064	U	0.00091	U	0.00083	U	0.00071	U
tert-Butylbenzene	98-06-6			100	NS	mg/kg	0.0018	U	0.0018	U	0.0013	U	0.0018	U	0.0017	U	0.0014	U
o-Chlorotoluene	95-49-8			100	NS	mg/kg	0.0018	U	0.0018	U	0.0013	U	0.0018	U	0.0017	U	0.0014	U
p-Chlorotoluene	106-43-4				NS	mg/kg	0.0018	U	0.0018	U	0.0013	U	0.0018	U	0.0017	U	0.0014	U
1,2-Dibromo-3-chloropropane	96-12-8			10	NS	mg/kg	0.0027	U	0.0027	U	0.0019	U	0.0027	U	0.0025	U	0.0021	U
Hexachlorobutadiene	87-68-3			30	30	mg/kg	0.0036	U	0.0036	U	0.0026	U	0.0036	U	0.0033	U	0.0028	U
Isopropylbenzene	98-82-8			1000	NS	mg/kg	0.0009	U	0.00089	U	0.00064	U	0.00091	U	0.00083	U	0.00071	U

Summary of Phase 1 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

	LOCATION							GLX-TPW-305-0.5'		GLX-TPW-205-8'		GLX-TPW-201-5		GLX-TPW-204-4.5'		GLX-TPW-203-4.5'		GLX-TPW-205-3.5'	
	SAMPLING DATE							5/24/2019		5/24/2019		5/23/2019		5/24/2019		5/24/2019		5/24/2019	
	LAB SAMPLE ID							L1922181-29		L1922181-30		L1922758-01		L1922773-01		L1922773-02		L1922773-03	
	SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	SAMPLE DEPTH (ft.)																		
		CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
MCP Volatile Organics by EPA 5035																			
	p-Isopropyltoluene	99-87-6			100	NS	mg/kg	0.0009	U	0.00089	U	0.00064	U	0.00091	U	0.00083	U	0.00071	U
	Naphthalene	91-20-3			4	4	mg/kg	0.0036	U	0.0036	U	0.0026	U	0.0036	U	0.0033	U	0.0028	U
	n-Propylbenzene	103-65-1			100	NS	mg/kg	0.0009	U	0.00089	U	0.00064	U	0.00091	U	0.00083	U	0.00071	U
	1,2,3-Trichlorobenzene	87-61-6				NS	mg/kg	0.0018	U	0.0018	U	0.0013	U	0.0018	U	0.0017	U	0.0014	U
	1,2,4-Trichlorobenzene	120-82-1			2	2	mg/kg	0.0018	U	0.0018	U	0.0013	U	0.0018	U	0.0017	U	0.0014	U
	1,3,5-Trimethylbenzene	108-67-8			10	NS	mg/kg	0.0018	U	0.0018	U	0.0013	U	0.0018	U	0.0017	U	0.0014	U
	1,2,4-Trimethylbenzene	95-63-6			1000	NS	mg/kg	0.0018	U	0.0018	U	0.0013	U	0.0018	U	0.0017	U	0.0014	U
	Diethyl ether	60-29-7			100	NS	mg/kg	0.0018	U	0.0018	U	0.0013	U	0.0018	U	0.0017	U	0.0014	U
	Diisopropyl Ether	108-20-3			100	NS	mg/kg	0.0018	U	0.0018	U	0.0013	U	0.0018	U	0.0017	U	0.0014	U
	Ethyl-Tert-Butyl-Ether	637-92-3				NS	mg/kg	0.0018	U	0.0018	U	0.0013	U	0.0018	U	0.0017	U	0.0014	U
	Tertiary-Amyl Methyl Ether	994-05-8				NS	mg/kg	0.0018	U	0.0018	U	0.0013	U	0.0018	U	0.0017	U	0.0014	U
	1,4-Dioxane	123-91-1			0.2	0.2	mg/kg	0.072	U	0.071	U	0.051	U	0.072	U	0.066	U	0.057	U
	Total VOCs		10	4			mg/kg												

Yellow shading indicates detected result is equal to or above one or more of the listed criteria.
Gray shading indicates nondetect detection limit is above one or more of the listed criteria.
Bold typeface indicates detection above metiond detection limit.

MA-LLAND: Lined Landfill Limits current as of August, 1997
MA-ULAND: UnLined Landfill Limits current as of August, 1997
RCS-1-14: MCP 2014 RCS-1 Reportable Concentrations Criteria effective April 25, 2014.
MCP 2014 S-1 Cleanup Criteria effective April 25, 2014; the lowest S-1/GW-X standard is shown.
**EPA-TCLP: EPA Toxicity Characteristic (TCLP) Regulatory Levels Criteria per 40CFR Part 261 as of September 10, 2015.

U - Not detected at the reported detection limit for the sample.
ND - Not detected.
E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
[1] - The laboratory reported two sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results and lowest detection limits have been tabulated. Refer to laboratory report for further detail.
[2] - The laboratory reported three sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results from the low-level analysis and detection limits from the high-level analysis have been tabulated due to significant internal standard issues with the low-level analysis. Refer to laboratory report for further detail.

Summary of Phase 1 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

LOCATION							GLX-TPW-3081-1.5'		GLX-TPW-3091-1.5'		GLX-TPW-3121-1.5'		GLX-TPW-2131-4.5'		GLX-TPW-2132-4.5'		GLX-TPW-2141-3.5'	
SAMPLING DATE							5/31/2019		5/31/2019		5/31/2019		5/31/2019		5/31/2019		5/31/2019	
LAB SAMPLE ID							L1923201-03		L1923201-06		L1923201-09		L1923201-12		L1923201-15		L1923201-18	
SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)																		
	CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
General Chemistry																		
Solids, Total	NONE					%	83		89.2		92		93.2		92.6		93.5	
MCP Volatile Organics by EPA 5035																		
Methylene chloride	75-09-2			0.1	NS	mg/kg	0.0068	U	0.0044	U	0.0047	U	0.0048	U	0.0038	U	0.0047	U
1,1-Dichloroethane	75-34-3			0.4	0.4	mg/kg	0.0014	U	0.00089	U	0.00094	U	0.00096	U	0.00076	U	0.00093	U
Chloroform	67-66-3			0.2	0.2	mg/kg	0.002	U	0.0013	U	0.0014	U	0.0014	U	0.0011	U	0.0014	U
Carbon tetrachloride	56-23-5			5	5	mg/kg	0.0014	U	0.00089	U	0.00094	U	0.00096	U	0.00076	U	0.00093	U
1,2-Dichloropropane	78-87-5			0.1	0.1	mg/kg	0.0014	U	0.00089	U	0.00094	U	0.00096	U	0.00076	U	0.00093	U
Dibromochloromethane	124-48-1			0.005	0.005	mg/kg	0.0014	U	0.00089	U	0.00094	U	0.00096	U	0.00076	U	0.00093	U
1,1,2-Trichloroethane	79-00-5			0.1	0.1	mg/kg	0.0014	U	0.00089	U	0.00094	U	0.00096	U	0.00076	U	0.00093	U
Tetrachloroethene	127-18-4			1	1	mg/kg	0.00068	U	**0.003**		**0.0014**		**0.00071**		**0.0033**		**0.098**	
Chlorobenzene	108-90-7			1	1	mg/kg	0.00068	U	0.00044	U	0.00047	U	0.00048	U	0.00038	U	0.00047	U
Trichlorofluoromethane	75-69-4			1000	NS	mg/kg	0.0054	U	0.0036	U	0.0038	U	0.0038	U	0.003	U	0.0037	U
1,2-Dichloroethane	107-06-2			0.1	0.1	mg/kg	0.0014	U	0.00089	U	0.00094	U	0.00096	U	0.00076	U	0.00093	U
1,1,1-Trichloroethane	71-55-6			30	30	mg/kg	0.00068	U	**0.00057**		0.00047	U	0.00048	U	0.00038	U	**0.0033**	
Bromodichloromethane	75-27-4			0.1	0.1	mg/kg	0.00068	U	0.00044	U	0.00047	U	0.00048	U	0.00038	U	0.00047	U
trans-1,3-Dichloropropene	10061-02-6			0.01	NS	mg/kg	0.0014	U	0.00089	U	0.00094	U	0.00096	U	0.00076	U	0.00093	U
cis-1,3-Dichloropropene	10061-01-5			0.01	NS	mg/kg	0.00068	U	0.00044	U	0.00047	U	0.00048	U	0.00038	U	0.00047	U
1,3-Dichloropropene, Total	542-75-6			0.01	0.01	mg/kg	0.00068	U	0.00044	U	0.00047	U	0.00048	U	0.00038	U	0.00047	U
1,1-Dichloropropene	563-58-6				NS	mg/kg	0.00068	U	0.00044	U	0.00047	U	0.00048	U	0.00038	U	0.00047	U
Bromoform	75-25-2			0.1	0.1	mg/kg	0.0054	U	0.0036	U	0.0038	U	0.0038	U	0.003	U	0.0037	U
1,1,2,2-Tetrachloroethane	79-34-5			0.005	0.005	mg/kg	0.00068	U	0.00044	U	0.00047	U	0.00048	U	0.00038	U	0.00047	U
Benzene	71-43-2			2	2	mg/kg	0.00068	U	0.00044	U	0.00047	U	0.00048	U	0.00038	U	0.00047	U
Toluene	108-88-3			30	30	mg/kg	0.0014	U	0.00089	U	0.00094	U	**0.0016**		0.00076	U	0.00093	U
Ethylbenzene	100-41-4			40	40	mg/kg	0.0014	U	0.00089	U	0.00094	U	0.00096	U	0.00076	U	0.00093	U
Chloromethane	74-87-3			100	NS	mg/kg	0.0054	U	0.0036	U	0.0038	U	0.0038	U	0.003	U	0.0037	U
Bromomethane	74-83-9			0.5	0.5	mg/kg	0.0027	U	0.0018	U	0.0019	U	0.0019	U	0.0015	U	0.0019	U
Vinyl chloride	75-01-4			0.7	0.7	mg/kg	0.0014	U	0.00089	U	0.00094	U	0.00096	U	0.00076	U	0.00093	U
Chloroethane	75-00-3			100	NS	mg/kg	0.0027	U	0.0018	U	0.0019	U	0.0019	U	0.0015	U	0.0019	U
1,1-Dichloroethene	75-35-4			3	3	mg/kg	0.0014	U	0.00089	U	0.00094	U	0.00096	U	0.00076	U	0.00093	U
trans-1,2-Dichloroethene	156-60-5			1	1	mg/kg	0.002	U	0.0013	U	0.0014	U	0.0014	U	0.0011	U	0.0014	U
Trichloroethene	79-01-6			0.3	0.3	mg/kg	0.00068	U	0.00044	U	0.00047	U	0.00048	U	0.00038	U	**0.0089**	
1,2-Dichlorobenzene	95-50-1			9	9	mg/kg	0.0027	U	0.0018	U	0.0019	U	0.0019	U	0.0015	U	0.0019	U
1,3-Dichlorobenzene	541-73-1			3	3	mg/kg	0.0027	U	0.0018	U	0.0019	U	0.0019	U	0.0015	U	0.0019	U
1,4-Dichlorobenzene	106-46-7			0.7	0.7	mg/kg	0.0027	U	0.0018	U	0.0019	U	0.0019	U	0.0015	U	0.0019	U
Methyl tert butyl ether	1634-04-4			0.1	0.1	mg/kg	0.0027	U	0.0018	U	0.0019	U	0.0019	U	0.0015	U	0.0019	U
p/m-Xylene	179601-23-1			100	100	mg/kg	0.0027	U	0.0018	U	0.0019	U	0.0019	U	0.0015	U	0.0019	U
o-Xylene	95-47-6			100	100	mg/kg	0.0014	U	0.00089	U	0.00094	U	0.00096	U	0.00076	U	0.00093	U
Xylenes, Total	1330-20-7			100	100	mg/kg	0.0014	U	0.00089	U	0.00094	U	0.00096	U	0.00076	U	0.00093	U
cis-1,2-Dichloroethene	156-59-2			0.1	0.1	mg/kg	0.0014	U	0.00089	U	0.00094	U	0.00096	U	0.00076	U	0.00093	U
1,2-Dichloroethene, Total	540-59-0				NS	mg/kg	0.0014	U	0.00089	U	0.00094	U	0.00096	U	0.00076	U	0.00093	U
Dibromomethane	74-95-3			500	NS	mg/kg	0.0027	U	0.0018	U	0.0019	U	0.0019	U	0.0015	U	0.0019	U
1,2,3-Trichloropropane	96-18-4			100	NS	mg/kg	0.0027	U	0.0018	U	0.0019	U	0.0019	U	0.0015	U	0.0019	U
Styrene	100-42-5			3	3	mg/kg	0.0014	U	0.00089	U	0.00094	U	0.00096	U	0.00076	U	0.00093	U
Dichlorodifluoromethane	75-71-8			1000	NS	mg/kg	0.014	U	0.0089	U	0.0094	U	0.0096	U	0.0076	U	0.0093	U
Acetone	67-64-1			6	6	mg/kg	**0.066**		**0.18**		**0.27**		**0.064**		**0.21**		**0.16**	
Carbon disulfide	75-15-0			100	NS	mg/kg	0.014	U	0.0089	U	0.0094	U	0.0096	U	0.0076	U	0.0093	U
Methyl ethyl ketone	78-93-3			4	4	mg/kg	0.014	U	0.0089	U	0.0094	U	0.0096	U	0.0076	U	0.0093	U
Methyl isobutyl ketone	108-10-1			0.4	0.4	mg/kg	0.014	U	0.0089	U	0.0094	U	0.0096	U	0.0076	U	0.0093	U
2-Hexanone	591-78-6			100	NS	mg/kg	0.014	U	0.0089	U	0.0094	U	0.0096	U	0.0076	U	0.0093	U
Bromochloromethane	74-97-5				NS	mg/kg	0.0027	U	0.0018	U	0.0019	U	0.0019	U	0.0015	U	0.0019	U
Tetrahydrofuran	109-99-9			500	NS	mg/kg	0.0054	U	0.0036	U	0.0038	U	0.0038	U	0.003	U	0.0037	U
2,2-Dichloropropane	594-20-7				NS	mg/kg	0.0027	U	0.0018	U	0.0019	U	0.0019	U	0.0015	U	0.0019	U
1,2-Dibromoethane	106-93-4			0.1	NS	mg/kg	0.0014	U	0.00089	U	0.00094	U	0.00096	U	0.00076	U	0.00093	U
1,3-Dichloropropane	142-28-9			500	NS	mg/kg	0.0027	U	0.0018	U	0.0019	U	0.0019	U	0.0015	U	0.0019	U
1,1,1,2-Tetrachloroethane	630-20-6			0.1	0.1	mg/kg	0.00068	U	0.00044	U	0.00047	U	0.00048	U	0.00038	U	0.00047	U
Bromobenzene	108-86-1			100	NS	mg/kg	0.0027	U	0.0018	U	0.0019	U	0.0019	U	0.0015	U	0.0019	U
n-Butylbenzene	104-51-8				NS	mg/kg	0.0014	U	0.00089	U	0.00094	U	0.00096	U	0.00076	U	0.00093	U
sec-Butylbenzene	135-98-8				NS	mg/kg	0.0014	U	0.00089	U	0.00094	U	0.00096	U	0.00076	U	0.00093	U
tert-Butylbenzene	98-06-6			100	NS	mg/kg	0.0027	U	0.0018	U	0.0019	U	0.0019	U	0.0015	U	0.0019	U
o-Chlorotoluene	95-49-8			100	NS	mg/kg	0.0027	U	0.0018	U	0.0019	U	0.0019	U	0.0015	U	0.0019	U
p-Chlorotoluene	106-43-4				NS	mg/kg	0.0027	U	0.0018	U	0.0019	U	0.0019	U	0.0015	U	0.0019	U
1,2-Dibromo-3-chloropropane	96-12-8			10	NS	mg/kg	0.004	U	0.0027	U	0.0028	U	0.0029	U	0.0023	U	0.0028	U
Hexachlorobutadiene	87-68-3			30	30	mg/kg	0.0054	U	0.0036	U	0.0038	U	0.0038	U	0.003	U	0.0037	U
Isopropylbenzene	98-82-8			1000	NS	mg/kg	0.0014	U	0.00089	U	0.00094	U	0.00096	U	0.00076	U	0.00093	U

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MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

LOCATION							GLX-TPW-3081-1.5'		GLX-TPW-3091-1.5'		GLX-TPW-3121-1.5'		GLX-TPW-2131-4.5'		GLX-TPW-2132-4.5'		GLX-TPW-2141-3.5'	
SAMPLING DATE							5/31/2019		5/31/2019		5/31/2019		5/31/2019		5/31/2019		5/31/2019	
LAB SAMPLE ID							L1923201-03		L1923201-06		L1923201-09		L1923201-12		L1923201-15		L1923201-18	
SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)																		
	CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
MCP Volatile Organics by EPA 5035																		
p-Isopropyltoluene	99-87-6			100	NS	mg/kg	0.0014	U	0.00089	U	0.00094	U	0.00096	U	0.00076	U	0.00093	U
Naphthalene	91-20-3			4	4	mg/kg	0.0054	U	0.0036	U	0.0038	U	0.0038	U	0.003	U	0.0037	U
n-Propylbenzene	103-65-1			100	NS	mg/kg	0.0014	U	0.00089	U	0.00094	U	0.00096	U	0.00076	U	0.00093	U
1,2,3-Trichlorobenzene	87-61-6				NS	mg/kg	0.0027	U	0.0018	U	0.0019	U	0.0019	U	0.0015	U	0.0019	U
1,2,4-Trichlorobenzene	120-82-1			2	2	mg/kg	0.0027	U	0.0018	U	0.0019	U	0.0019	U	0.0015	U	0.0019	U
1,3,5-Trimethylbenzene	108-67-8			10	NS	mg/kg	0.0027	U	0.0018	U	0.0019	U	0.0019	U	0.0015	U	0.0019	U
1,2,4-Trimethylbenzene	95-63-6			1000	NS	mg/kg	0.0027	U	0.0018	U	0.0019	U	0.0019	U	0.0015	U	0.0019	U
Diethyl ether	60-29-7			100	NS	mg/kg	0.0027	U	0.0018	U	0.0019	U	0.0019	U	0.0015	U	0.0019	U
Diisopropyl Ether	108-20-3			100	NS	mg/kg	0.0027	U	0.0018	U	0.0019	U	0.0019	U	0.0015	U	0.0019	U
Ethyl-Tert-Butyl-Ether	637-92-3				NS	mg/kg	0.0027	U	0.0018	U	0.0019	U	0.0019	U	0.0015	U	0.0019	U
Tertiary-Amyl Methyl Ether	994-05-8				NS	mg/kg	0.0027	U	0.0018	U	0.0019	U	0.0019	U	0.0015	U	0.0019	U
1,4-Dioxane	123-91-1			0.2	0.2	mg/kg	0.11	U	0.071	U	0.075	U	0.077	U	0.061	U	0.075	U
Total VOCs		10	4			mg/kg												

Yellow shading indicates detected result is equal to or above one or more of the listed criteria.
Gray shading indicates nondetect detection limit is above one or more of the listed criteria.
Bold typeface indicates detection above metiond detection limit.

MA-LLAND: Lined Landfill Limits current as of August, 1997
MA-ULAND: UnLined Landfill Limits current as of August, 1997
RCS-1-14: MCP 2014 RCS-1 Reportable Concentrations Criteria effective April 25, 2014.
MCP 2014 S-1 Cleanup Criteria effective April 25, 2014; the lowest S-1/GW-X standard is shown.
**EPA-TCLP: EPA Toxicity Characteristic (TCLP) Regulatory Levels Criteria per 40CFR Part 261 as of September 10, 2015.

U - Not detected at the reported detection limit for the sample.
ND - Not detected.
E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
[1] - The laboratory reported two sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results and lowest detection limits have been tabulated. Refer to laboratory report for further detail.
[2] - The laboratory reported three sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results from the low-level analysis and detection limits from the high-level analysis have been
tabulated due to significant internal standard issues with the low-level analysis. Refer to laboratory report for further detail.

Summary of Phase 1 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

LOCATION							GLX-TPW-2142-3.5'		GLX-TPW-503-4.5'		GLX-TPW-504-5'		GLX-TPW-505-5'	
SAMPLING DATE							5/31/2019		5/31/2019		5/31/2019		5/31/2019	
LAB SAMPLE ID							L1923201-21		L1923201-24		L1923201-27		L1923201-30	
SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)														
	CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual
General Chemistry														
Solids, Total	NONE					%	92.2		91.4		92.3		90.3	
MCP Volatile Organics by EPA 5035														
Methylene chloride	75-09-2			0.1	NS	mg/kg	0.0054	U	0.0054	U	0.0043	U	0.0038	U
1,1-Dichloroethane	75-34-3			0.4	0.4	mg/kg	0.0011	U	0.0011	U	0.00086	U	0.00077	U
Chloroform	67-66-3			0.2	0.2	mg/kg	0.0016	U	0.0016	U	0.0013	U	0.0012	U
Carbon tetrachloride	56-23-5			5	5	mg/kg	0.0011	U	0.0011	U	0.00086	U	0.00077	U
1,2-Dichloropropane	78-87-5			0.1	0.1	mg/kg	0.0011	U	0.0011	U	0.00086	U	0.00077	U
Dibromochloromethane	124-48-1			0.005	0.005	mg/kg	0.0011	U	0.0011	U	0.00086	U	0.00077	U
1,1,2-Trichloroethane	79-00-5			0.1	0.1	mg/kg	0.0011	U	0.0011	U	0.00086	U	0.00077	U
Tetrachloroethene	127-18-4			1	1	mg/kg	**0.0068**		**0.0006**		0.00043	U	0.00038	U
Chlorobenzene	108-90-7			1	1	mg/kg	0.00054	U	0.00054	U	0.00043	U	0.00038	U
Trichlorofluoromethane	75-69-4			1000	NS	mg/kg	0.0043	U	0.0044	U	0.0034	U	0.0031	U
1,2-Dichloroethane	107-06-2			0.1	0.1	mg/kg	0.0011	U	0.0011	U	0.00086	U	0.00077	U
1,1,1-Trichloroethane	71-55-6			30	30	mg/kg	**0.00076**		0.00054	U	0.00043	U	0.00038	U
Bromodichloromethane	75-27-4			0.1	0.1	mg/kg	0.00054	U	0.00054	U	0.00043	U	0.00038	U
trans-1,3-Dichloropropene	10061-02-6			0.01	NS	mg/kg	0.0011	U	0.0011	U	0.00086	U	0.00077	U
cis-1,3-Dichloropropene	10061-01-5			0.01	NS	mg/kg	0.00054	U	0.00054	U	0.00043	U	0.00038	U
1,3-Dichloropropene, Total	542-75-6			0.01	0.01	mg/kg	0.00054	U	0.00054	U	0.00043	U	0.00038	U
1,1-Dichloropropene	563-58-6				NS	mg/kg	0.00054	U	0.00054	U	0.00043	U	0.00038	U
Bromoform	75-25-2			0.1	0.1	mg/kg	0.0043	U	0.0044	U	0.0034	U	0.0031	U
1,1,2,2-Tetrachloroethane	79-34-5			0.005	0.005	mg/kg	0.00054	U	0.00054	U	0.00043	U	0.00038	U
Benzene	71-43-2			2	2	mg/kg	0.00054	U	0.00054	U	0.00043	U	0.00038	U
Toluene	108-88-3			30	30	mg/kg	**0.0019**		**0.0014**		**0.0012**		0.00077	U
Ethylbenzene	100-41-4			40	40	mg/kg	0.0011	U	0.0011	U	0.00086	U	0.00077	U
Chloromethane	74-87-3			100	NS	mg/kg	0.0043	U	0.0044	U	0.0034	U	0.0031	U
Bromomethane	74-83-9			0.5	0.5	mg/kg	0.0022	U	0.0022	U	0.0017	U	0.0015	U
Vinyl chloride	75-01-4			0.7	0.7	mg/kg	0.0011	U	0.0011	U	0.00086	U	0.00077	U
Chloroethane	75-00-3			100	NS	mg/kg	0.0022	U	0.0022	U	0.0017	U	0.0015	U
1,1-Dichloroethene	75-35-4			3	3	mg/kg	0.0011	U	0.0011	U	0.00086	U	0.00077	U
trans-1,2-Dichloroethene	156-60-5			1	1	mg/kg	0.0016	U	0.0016	U	0.0013	U	0.0012	U
Trichloroethene	79-01-6			0.3	0.3	mg/kg	0.00054	U	0.00054	U	0.00043	U	0.00038	U
1,2-Dichlorobenzene	95-50-1			9	9	mg/kg	0.0022	U	0.0022	U	0.0017	U	0.0015	U
1,3-Dichlorobenzene	541-73-1			3	3	mg/kg	0.0022	U	0.0022	U	0.0017	U	0.0015	U
1,4-Dichlorobenzene	106-46-7			0.7	0.7	mg/kg	0.0022	U	0.0022	U	0.0017	U	0.0015	U
Methyl tert butyl ether	1634-04-4			0.1	0.1	mg/kg	0.0022	U	0.0022	U	0.0017	U	0.0015	U
p/m-Xylene	179601-23-1			100	100	mg/kg	0.0022	U	0.0022	U	0.0017	U	0.0015	U
o-Xylene	95-47-6			100	100	mg/kg	0.0011	U	0.0011	U	0.00086	U	0.00077	U
Xylenes, Total	1330-20-7			100	100	mg/kg	0.0011	U	0.0011	U	0.00086	U	0.00077	U
cis-1,2-Dichloroethene	156-59-2			0.1	0.1	mg/kg	0.0011	U	0.0011	U	0.00086	U	0.00077	U
1,2-Dichloroethene, Total	540-59-0				NS	mg/kg	0.0011	U	0.0011	U	0.00086	U	0.00077	U
Dibromomethane	74-95-3			500	NS	mg/kg	0.0022	U	0.0022	U	0.0017	U	0.0015	U
1,2,3-Trichloropropane	96-18-4			100	NS	mg/kg	0.0022	U	0.0022	U	0.0017	U	0.0015	U
Styrene	100-42-5			3	3	mg/kg	0.0011	U	0.0011	U	0.00086	U	0.00077	U
Dichlorodifluoromethane	75-71-8			1000	NS	mg/kg	0.011	U	0.011	U	0.0086	U	0.0077	U
Acetone	67-64-1			6	6	mg/kg	**0.061**		**0.087**		**0.042**		**0.13**	
Carbon disulfide	75-15-0			100	NS	mg/kg	0.011	U	0.011	U	0.0086	U	0.0077	U
Methyl ethyl ketone	78-93-3			4	4	mg/kg	0.011	U	0.011	U	0.0086	U	0.0077	U
Methyl isobutyl ketone	108-10-1			0.4	0.4	mg/kg	0.011	U	0.011	U	0.0086	U	0.0077	U
2-Hexanone	591-78-6			100	NS	mg/kg	0.011	U	0.011	U	0.0086	U	0.0077	U
Bromochloromethane	74-97-5				NS	mg/kg	0.0022	U	0.0022	U	0.0017	U	0.0015	U
Tetrahydrofuran	109-99-9			500	NS	mg/kg	0.0043	U	0.0044	U	0.0034	U	0.0031	U
2,2-Dichloropropane	594-20-7				NS	mg/kg	0.0022	U	0.0022	U	0.0017	U	0.0015	U
1,2-Dibromoethane	106-93-4			0.1	NS	mg/kg	0.0011	U	0.0011	U	0.00086	U	0.00077	U
1,3-Dichloropropane	142-28-9			500	NS	mg/kg	0.0022	U	0.0022	U	0.0017	U	0.0015	U
1,1,1,2-Tetrachloroethane	630-20-6			0.1	0.1	mg/kg	0.00054	U	0.00054	U	0.00043	U	0.00038	U
Bromobenzene	108-86-1			100	NS	mg/kg	0.0022	U	0.0022	U	0.0017	U	0.0015	U
n-Butylbenzene	104-51-8				NS	mg/kg	0.0011	U	0.0011	U	0.00086	U	0.00077	U
sec-Butylbenzene	135-98-8				NS	mg/kg	0.0011	U	0.0011	U	0.00086	U	0.00077	U
tert-Butylbenzene	98-06-6			100	NS	mg/kg	0.0022	U	0.0022	U	0.0017	U	0.0015	U
o-Chlorotoluene	95-49-8			100	NS	mg/kg	0.0022	U	0.0022	U	0.0017	U	0.0015	U
p-Chlorotoluene	106-43-4				NS	mg/kg	0.0022	U	0.0022	U	0.0017	U	0.0015	U
1,2-Dibromo-3-chloropropane	96-12-8			10	NS	mg/kg	0.0032	U	0.0033	U	0.0026	U	0.0023	U
Hexachlorobutadiene	87-68-3			30	30	mg/kg	0.0043	U	0.0044	U	0.0034	U	0.0031	U
Isopropylbenzene	98-82-8			1000	NS	mg/kg	0.0011	U	0.0011	U	0.00086	U	0.00077	U

Summary of Phase 1 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

	LOCATION							GLX-TPW-2142-3.5'		GLX-TPW-503-4.5'		GLX-TPW-504-5'		GLX-TPW-505-5'	
	SAMPLING DATE							5/31/2019		5/31/2019		5/31/2019		5/31/2019	
	LAB SAMPLE ID							L1923201-21		L1923201-24		L1923201-27		L1923201-30	
	SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL	
	SAMPLE DEPTH (ft.)														
		CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual
MCP Volatile Organics by EPA 5035															
	p-Isopropyltoluene	99-87-6			100	NS	mg/kg	0.0011	U	0.0011	U	0.00086	U	0.00077	U
	Naphthalene	91-20-3			4	4	mg/kg	0.0043	U	0.0044	U	0.0034	U	0.0031	U
	n-Propylbenzene	103-65-1			100	NS	mg/kg	0.0011	U	0.0011	U	0.00086	U	0.00077	U
	1,2,3-Trichlorobenzene	87-61-6				NS	mg/kg	0.0022	U	0.0022	U	0.0017	U	0.0015	U
	1,2,4-Trichlorobenzene	120-82-1			2	2	mg/kg	0.0022	U	0.0022	U	0.0017	U	0.0015	U
	1,3,5-Trimethylbenzene	108-67-8			10	NS	mg/kg	0.0022	U	0.0022	U	0.0017	U	0.0015	U
	1,2,4-Trimethylbenzene	95-63-6			1000	NS	mg/kg	0.0022	U	0.0022	U	0.0017	U	0.0015	U
	Diethyl ether	60-29-7			100	NS	mg/kg	0.0022	U	0.0022	U	0.0017	U	0.0015	U
	Diisopropyl Ether	108-20-3			100	NS	mg/kg	0.0022	U	0.0022	U	0.0017	U	0.0015	U
	Ethyl-Tert-Butyl-Ether	637-92-3				NS	mg/kg	0.0022	U	0.0022	U	0.0017	U	0.0015	U
	Tertiary-Amyl Methyl Ether	994-05-8				NS	mg/kg	0.0022	U	0.0022	U	0.0017	U	0.0015	U
	1,4-Dioxane	123-91-1			0.2	0.2	mg/kg	0.087	U	0.087	U	0.069	U	0.062	U
	Total VOCs		10	4			mg/kg								

Yellow shading indicates detected result is equal to or above one or more of the listed criteria.
Gray shading indicates nondetect detection limit is above one or more of the listed criteria.
Bold typeface indicates detection above metiond detection limit.

MA-LLAND: Lined Landfill Limits current as of August, 1997
MA-ULAND: UnLined Landfill Limits current as of August, 1997
RCS-1-14: MCP 2014 RCS-1 Reportable Concentrations Criteria effective April 25, 2014.
MCP 2014 S-1 Cleanup Criteria effective April 25, 2014; the lowest S-1/GW-X standard is shown.
**EPA-TCLP: EPA Toxicity Characteristic (TCLP) Regulatory Levels Criteria per 40CFR Part 261 as of September 10, 2015.

U - Not detected at the reported detection limit for the sample.
ND - Not detected.
E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
[1] - The laboratory reported two sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results and lowest detection limits have been tabulated. Refer to laboratory report for further detail.
[2] - The laboratory reported three sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results from the low-level analysis and detection limits from the high-level analysis have been
tabulated due to significant internal standard issues with the low-level analysis. Refer to laboratory report for further detail.

Summary of Phase 2 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

	LOCATION							GLX-TPW-601-VOC-2[1]		GLX-TPW-601-VOC-3		GLX-TPW-601-VOC-6		TPW-615-VOC-1		GLX-TPW-615-VOC-4	
	SAMPLING DATE							10/20/2019		10/20/2019		10/20/2019		10/20/2019		10/20/2019	
	LAB SAMPLE ID							L1949294-28		L1949294-29		L1949294-30		L1949294-31		L1949294-32	
	SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL		SOIL	
	SAMPLE DEPTH (ft.)																
		CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
General Chemistry																	
	Solids, Total	NONE					%	95.1		81.5		90.4		93.1		92.5	
MCP Volatile Organics by EPA 5035																	
	Methylene chloride	75-09-2			0.1	NS	mg/kg	0.0035	U	0.54	U	0.0038	U	0.0041	U	0.0033	U
	1,1-Dichloroethane	75-34-3			0.4	0.4	mg/kg	0.0007	U	0.11	U	0.00076	U	0.00082	U	0.00066	U
	Chloroform	67-66-3			0.2	0.2	mg/kg	0.001	U	0.16	U	0.0011	U	0.0012	U	0.00099	U
	Carbon tetrachloride	56-23-5			5	5	mg/kg	0.0007	U	0.11	U	0.00076	U	0.00082	U	0.00066	U
	1,2-Dichloropropane	78-87-5			0.1	0.1	mg/kg	0.0007	U	0.11	U	0.00076	U	0.00082	U	0.00066	U
	Dibromochloromethane	124-48-1			0.005	0.005	mg/kg	0.0007	U	0.11	U	0.00076	U	0.00082	U	0.00066	U
	1,1,2-Trichloroethane	79-00-5			0.1	0.1	mg/kg	0.0007	U	0.11	U	0.00076	U	0.00082	U	0.00066	U
	Tetrachloroethene	127-18-4			1	1	mg/kg	**0.0012**		**0.7**		0.00038	U	0.00041	U	0.00033	U
	Chlorobenzene	108-90-7			1	1	mg/kg	0.00035	U	0.054	U	0.00038	U	0.00041	U	0.00033	U
	Trichlorofluoromethane	75-69-4			1000	NS	mg/kg	0.0028	U	0.43	U	0.003	U	0.0033	U	0.0026	U
	1,2-Dichloroethane	107-06-2			0.1	0.1	mg/kg	0.0007	U	0.11	U	0.00076	U	0.00082	U	0.00066	U
	1,1,1-Trichloroethane	71-55-6			30	30	mg/kg	0.00035	U	0.054	U	0.00038	U	0.00041	U	0.00033	U
	Bromodichloromethane	75-27-4			0.1	0.1	mg/kg	0.00035	U	0.054	U	0.00038	U	0.00041	U	0.00033	U
	trans-1,3-Dichloropropene	10061-02-6			0.01	NS	mg/kg	0.0007	U	0.11	U	0.00076	U	0.00082	U	0.00066	U
	cis-1,3-Dichloropropene	10061-01-5			0.01	NS	mg/kg	0.00035	U	0.054	U	0.00038	U	0.00041	U	0.00033	U
	1,3-Dichloropropene, Total	542-75-6			0.01	0.01	mg/kg	0.00035	U	0.054	U	0.00038	U	0.00041	U	0.00033	U
	1,1-Dichloropropene	563-58-6				NS	mg/kg	0.00035	U	0.054	U	0.00038	U	0.00041	U	0.00033	U
	Bromoform	75-25-2			0.1	0.1	mg/kg	0.0028	U	0.43	U	0.003	U	0.0033	U	0.0026	U
	1,1,2,2-Tetrachloroethane	79-34-5			0.005	0.005	mg/kg	0.00035	U	0.054	U	0.00038	U	0.00041	U	0.00033	U
	Benzene	71-43-2			2	2	mg/kg	0.00035	U	0.054	U	0.00038	U	0.00041	U	0.00033	U
	Toluene	108-88-3			30	30	mg/kg	0.0007	U	0.11	U	0.00076	U	0.00082	U	0.00066	U
	Ethylbenzene	100-41-4			40	40	mg/kg	0.0007	U	0.11	U	0.00076	U	0.00082	U	0.00066	U
	Chloromethane	74-87-3			100	NS	mg/kg	0.0028	U	0.43	U	0.003	U	0.0033	U	0.0026	U
	Bromomethane	74-83-9			0.5	0.5	mg/kg	0.0014	U	0.22	U	0.0015	U	0.0016	U	0.0013	U
	Vinyl chloride	75-01-4			0.7	0.7	mg/kg	0.0007	U	0.11	U	0.00076	U	0.00082	U	0.00066	U
	Chloroethane	75-00-3			100	NS	mg/kg	0.0014	U	0.22	U	0.0015	U	0.0016	U	0.0013	U
	1,1-Dichloroethene	75-35-4			3	3	mg/kg	0.0007	U	0.11	U	0.00076	U	0.00082	U	0.00066	U
	trans-1,2-Dichloroethene	156-60-5			1	1	mg/kg	0.001	U	0.16	U	0.0011	U	0.0012	U	0.00099	U
	Trichloroethene	79-01-6			0.3	0.3	mg/kg	0.00035	U	0.054	U	0.00038	U	0.00041	U	0.00033	U
	1,2-Dichlorobenzene	95-50-1			9	9	mg/kg	0.0014	U	0.22	U	0.0015	U	0.0016	U	0.0013	U
	1,3-Dichlorobenzene	541-73-1			3	3	mg/kg	0.0014	U	0.22	U	0.0015	U	0.0016	U	0.0013	U
	1,4-Dichlorobenzene	106-46-7			0.7	0.7	mg/kg	0.0014	U	0.22	U	0.0015	U	0.0016	U	0.0013	U
	Methyl tert butyl ether	1634-04-4			0.1	0.1	mg/kg	0.0014	U	0.22	U	0.0015	U	0.0016	U	0.0013	U
	p/m-Xylene	179601-23-1			100	100	mg/kg	0.0014	U	0.22	U	0.0015	U	0.0016	U	0.0013	U
	o-Xylene	95-47-6			100	100	mg/kg	0.0007	U	0.11	U	0.00076	U	0.00082	U	0.00066	U
	Xylenes, Total	1330-20-7			100	100	mg/kg	0.0007	U	0.11	U	0.00076	U	0.00082	U	0.00066	U
	cis-1,2-Dichloroethene	156-59-2			0.1	0.1	mg/kg	0.0007	U	0.11	U	0.00076	U	0.00082	U	0.00066	U
	1,2-Dichloroethene, Total	540-59-0				NS	mg/kg	0.0007	U	0.11	U	0.00076	U	0.00082	U	0.00066	U
	Dibromomethane	74-95-3			500	NS	mg/kg	0.0014	U	0.22	U	0.0015	U	0.0016	U	0.0013	U
	1,2,3-Trichloropropane	96-18-4			100	NS	mg/kg	0.0014	U	0.22	U	0.0015	U	0.0016	U	0.0013	U
	Styrene	100-42-5			3	3	mg/kg	0.0007	U	0.11	U	0.00076	U	0.00082	U	0.00066	U
	Dichlorodifluoromethane	75-71-8			1000	NS	mg/kg	0.007	U	1.1	U	0.0076	U	0.0082	U	0.0066	U
	Acetone	67-64-1			6	6	mg/kg	**0.097**		1.1	U	**0.034**		0.02	U	0.016	U
	Carbon disulfide	75-15-0			100	NS	mg/kg	0.007	U	1.1	U	0.0076	U	0.0082	U	0.0066	U
	Methyl ethyl ketone	78-93-3			4	4	mg/kg	0.007	U	1.1	U	0.0076	U	0.0082	U	0.0066	U
	Methyl isobutyl ketone	108-10-1			0.4	0.4	mg/kg	0.007	U	1.1	U	0.0076	U	0.0082	U	0.0066	U
	2-Hexanone	591-78-6			100	NS	mg/kg	0.007	U	1.1	U	0.0076	U	0.0082	U	0.0066	U
	Bromochloromethane	74-97-5				NS	mg/kg	0.0014	U	0.22	U	0.0015	U	0.0016	U	0.0013	U
	Tetrahydrofuran	109-99-9			500	NS	mg/kg	0.0028	U	0.43	U	0.003	U	0.0033	U	0.0026	U

Summary of Phase 2 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

LOCATION							GLX-TPW-601-VOC-2[1]		GLX-TPW-601-VOC-3		GLX-TPW-601-VOC-6		TPW-615-VOC-1		GLX-TPW-615-VOC-4	
SAMPLING DATE							10/20/2019		10/20/2019		10/20/2019		10/20/2019		10/20/2019	
LAB SAMPLE ID							L1949294-28		L1949294-29		L1949294-30		L1949294-31		L1949294-32	
SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)																
	CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
MCP Volatile Organics by EPA 5035					NS											
2,2-Dichloropropane	594-20-7				NS	mg/kg	0.0014	U	0.22	U	0.0015	U	0.0016	U	0.0013	U
1,2-Dibromoethane	106-93-4			0.1	NS	mg/kg	0.0007	U	0.11	U	0.00076	U	0.00082	U	0.00066	U
1,3-Dichloropropane	142-28-9			500	0.1	mg/kg	0.0014	U	0.22	U	0.0015	U	0.0016	U	0.0013	U
1,1,1,2-Tetrachloroethane	630-20-6			0.1	NS	mg/kg	0.00035	U	0.054	U	0.00038	U	0.00041	U	0.00033	U
Bromobenzene	108-86-1			100	NS	mg/kg	0.0014	U	0.22	U	0.0015	U	0.0016	U	0.0013	U
n-Butylbenzene	104-51-8				NS	mg/kg	0.0007	U	0.11	U	0.00076	U	0.00082	U	0.00066	U
sec-Butylbenzene	135-98-8				NS	mg/kg	0.0007	U	0.11	U	0.00076	U	0.00082	U	0.00066	U
tert-Butylbenzene	98-06-6			100	NS	mg/kg	0.0014	U	0.22	U	0.0015	U	0.0016	U	0.0013	U
o-Chlorotoluene	95-49-8			100	NS	mg/kg	0.0014	U	0.22	U	0.0015	U	0.0016	U	0.0013	U
p-Chlorotoluene	106-43-4				NS	mg/kg	0.0014	U	0.22	U	0.0015	U	0.0016	U	0.0013	U
1,2-Dibromo-3-chloropropane	96-12-8			10	30	mg/kg	0.0021	U	0.33	U	0.0023	U	0.0024	U	0.002	U
Hexachlorobutadiene	87-68-3			30	NS	mg/kg	0.0028	U	0.43	U	0.003	U	0.0033	U	0.0026	U
Isopropylbenzene	98-82-8			1000		mg/kg	0.0007	U	0.11	U	0.00076	U	0.00082	U	0.00066	U
p-Isopropyltoluene	99-87-6			100	NS	mg/kg	0.0007	U	0.11	U	0.00076	U	0.00082	U	0.00066	U
Naphthalene	91-20-3			4	4	mg/kg	0.0028	U	0.43	U	0.003	U	0.0033	U	0.0026	U
n-Propylbenzene	103-65-1			100	NS	mg/kg	0.0007	U	0.11	U	0.00076	U	0.00082	U	0.00066	U
1,2,3-Trichlorobenzene	87-61-6				NS	mg/kg	0.0014	U	0.22	U	0.0015	U	0.0016	U	0.0013	U
1,2,4-Trichlorobenzene	120-82-1			2	2	mg/kg	0.0014	U	0.22	U	0.0015	U	0.0016	U	0.0013	U
1,3,5-Trimethylbenzene	108-67-8			10	NS	mg/kg	0.0014	U	0.22	U	0.0015	U	0.0016	U	0.0013	U
1,2,4-Trimethylbenzene	95-63-6			1000	NS	mg/kg	0.0014	U	0.22	U	0.0015	U	0.0016	U	0.0013	U
Diethyl ether	60-29-7			100	NS	mg/kg	0.0014	U	0.22	U	0.0015	U	0.0016	U	0.0013	U
Diisopropyl Ether	108-20-3			100	NS	mg/kg	0.0014	U	0.22	U	0.0015	U	0.0016	U	0.0013	U
Ethyl-Tert-Butyl-Ether	637-92-3				NS	mg/kg	0.0014	U	0.22	U	0.0015	U	0.0016	U	0.0013	U
Tertiary-Amyl Methyl Ether	994-05-8				NS	mg/kg	0.0014	U	0.22	U	0.0015	U	0.0016	U	0.0013	U
1,4-Dioxane	123-91-1			0.2	0.2	mg/kg	0.056	U	8.7	U	0.061	U	0.065	U	0.053	U

Yellow shading indicates detected result is equal to or above one or more of the listed criteria.
Gray shading indicates nondetect detection limit is above one or more of the listed criteria.
Bold typeface indicates detection above metiond detection limit.

MA-LLAND: Lined Landfill Limits current as of August, 1997
MA-ULAND: UnLined Landfill Limits current as of August, 1997
RCS-1-14: MCP 2014 RCS-1 Reportable Concentrations Criteria effective April 25, 2014.
MCP 2014 S-1 Cleanup Criteria effective April 25, 2014; the lowest S-1/GW-X standard is shown.
**EPA-TCLP: EPA Toxicity Characteristic (TCLP) Regulatory Levels Criteria per 40CFR Part 261 as of September 10, 2015.

U - Not detected at the reported detection limit for the sample.
ND - Not detected.
E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
[1] - The laboratory reported two sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results and lowest detection limits have been tabulated. Refer to laboratory report for further detail.
[2] - The laboratory reported three sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results from the low-level analysis and detection limits from the high-level analysis have been tabulated due to significant internal standard issues with the low-level analysis. Refer to laboratory report for further detail.

Summary of Phase 2 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

LOCATION							GLX-TPW-615-VOC-7		GLX-TPW-615-VOC-10		GLX-TPW-615-VOC-13		GLX-TPW-602-VOC-2		GLX-TPW-602-VOC-4.5		GLX-TPW-602-VOC-6.5	
SAMPLING DATE							10/20/2019		10/20/2019		10/20/2019		10/20/2019		10/20/2019		10/20/2019	
LAB SAMPLE ID							L1949294-33		L1949294-34		L1949294-35		L1949294-36		L1949294-37		L1949294-38	
SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)																		
	CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
General Chemistry																		
Solids, Total	NONE					%	96		93.4		90.2		91.7		93.4		84.8	
MCP Volatile Organics by EPA 5035																		
Methylene chloride	75-09-2			0.1	NS	mg/kg	0.0036	U	0.0037	U	0.0034	U	0.28	U	2.4	U	0.005	U
1,1-Dichloroethane	75-34-3			0.4	0.4	mg/kg	0.00071	U	0.00075	U	0.00067	U	0.056	U	0.47	U	0.001	U
Chloroform	67-66-3			0.2	0.2	mg/kg	0.0011	U	0.0011	U	0.001	U	0.084	U	0.71	U	0.0015	U
Carbon tetrachloride	56-23-5			5	5	mg/kg	0.00071	U	0.00075	U	0.00067	U	0.056	U	0.47	U	0.001	U
1,2-Dichloropropane	78-87-5			0.1	0.1	mg/kg	0.00071	U	0.00075	U	0.00067	U	0.056	U	0.47	U	0.001	U
Dibromochloromethane	124-48-1			0.005	0.005	mg/kg	0.00071	U	0.00075	U	0.00067	U	0.056	U	0.47	U	0.001	U
1,1,2-Trichloroethane	79-00-5			0.1	0.1	mg/kg	0.00071	U	0.00075	U	0.00067	U	0.056	U	0.47	U	0.001	U
Tetrachloroethene	127-18-4			1	1	mg/kg	0.00036	U	0.00037	U	0.00034	U	0.028	U	0.24	U	0.0005	U
Chlorobenzene	108-90-7			1	1	mg/kg	0.00036	U	0.00037	U	0.00034	U	0.028	U	0.24	U	0.0005	U
Trichlorofluoromethane	75-69-4			1000	NS	mg/kg	0.0028	U	0.003	U	0.0027	U	0.22	U	1.9	U	0.004	U
1,2-Dichloroethane	107-06-2			0.1	0.1	mg/kg	0.00071	U	0.00075	U	0.00067	U	0.056	U	0.47	U	0.001	U
1,1,1-Trichloroethane	71-55-6			30	30	mg/kg	0.00036	U	0.00037	U	0.00034	U	0.028	U	0.24	U	0.0005	U
Bromodichloromethane	75-27-4			0.1	0.1	mg/kg	0.00036	U	0.00037	U	0.00034	U	0.028	U	0.24	U	0.0005	U
trans-1,3-Dichloropropene	10061-02-6			0.01	NS	mg/kg	0.00071	U	0.00075	U	0.00067	U	0.056	U	0.47	U	0.001	U
cis-1,3-Dichloropropene	10061-01-5			0.01	NS	mg/kg	0.00036	U	0.00037	U	0.00034	U	0.028	U	0.24	U	0.0005	U
1,3-Dichloropropene, Total	542-75-6			0.01	0.01	mg/kg	0.00036	U	0.00037	U	0.00034	U	0.028	U	0.24	U	0.0005	U
1,1-Dichloropropene	563-58-6				NS	mg/kg	0.00036	U	0.00037	U	0.00034	U	0.028	U	0.24	U	0.0005	U
Bromoform	75-25-2			0.1	0.1	mg/kg	0.0028	U	0.003	U	0.0027	U	0.22	U	1.9	U	0.004	U
1,1,2,2-Tetrachloroethane	79-34-5			0.005	0.005	mg/kg	0.00036	U	0.00037	U	0.00034	U	0.028	U	0.24	U	0.0005	U
Benzene	71-43-2			2	2	mg/kg	0.00036	U	0.00037	U	0.00034	U	**0.044**		0.24	U	0.0005	U
Toluene	108-88-3			30	30	mg/kg	0.00071	U	0.00075	U	0.00067	U	**0.11**		0.47	U	0.001	U
Ethylbenzene	100-41-4			40	40	mg/kg	0.00071	U	0.00075	U	0.00067	U	0.056	U	0.47	U	0.001	U
Chloromethane	74-87-3			100	NS	mg/kg	0.0028	U	0.003	U	0.0027	U	0.22	U	1.9	U	0.004	U
Bromomethane	74-83-9			0.5	0.5	mg/kg	0.0014	U	0.0015	U	0.0013	U	0.11	U	0.94	U	0.002	U
Vinyl chloride	75-01-4			0.7	0.7	mg/kg	0.00071	U	0.00075	U	0.00067	U	0.056	U	0.47	U	0.001	U
Chloroethane	75-00-3			100	NS	mg/kg	0.0014	U	0.0015	U	0.0013	U	0.11	U	0.94	U	0.002	U
1,1-Dichloroethene	75-35-4			3	3	mg/kg	0.00071	U	0.00075	U	0.00067	U	0.056	U	0.47	U	0.001	U
trans-1,2-Dichloroethene	156-60-5			1	1	mg/kg	0.0011	U	0.0011	U	0.001	U	0.084	U	0.71	U	0.0015	U
Trichloroethene	79-01-6			0.3	0.3	mg/kg	0.00036	U	0.00037	U	0.00034	U	0.028	U	0.24	U	0.0005	U
1,2-Dichlorobenzene	95-50-1			9	9	mg/kg	0.0014	U	0.0015	U	0.0013	U	0.11	U	0.94	U	0.002	U
1,3-Dichlorobenzene	541-73-1			3	3	mg/kg	0.0014	U	0.0015	U	0.0013	U	0.11	U	0.94	U	0.002	U
1,4-Dichlorobenzene	106-46-7			0.7	0.7	mg/kg	0.0014	U	0.0015	U	0.0013	U	0.11	U	0.94	U	0.002	U
Methyl tert butyl ether	1634-04-4			0.1	0.1	mg/kg	0.0014	U	0.0015	U	0.0013	U	0.11	U	0.94	U	0.002	U
p/m-Xylene	179601-23-1			100	100	mg/kg	0.0014	U	0.0015	U	0.0013	U	0.11	U	0.94	U	0.002	U
o-Xylene	95-47-6			100	100	mg/kg	0.00071	U	0.00075	U	0.00067	U	**0.078**		0.47	U	0.001	U
Xylenes, Total	1330-20-7			100	100	mg/kg	0.00071	U	0.00075	U	0.00067	U	**0.078**		0.47	U	0.001	U
cis-1,2-Dichloroethene	156-59-2			0.1	0.1	mg/kg	0.00071	U	0.00075	U	0.00067	U	0.056	U	0.47	U	0.001	U
1,2-Dichloroethene, Total	540-59-0				NS	mg/kg	0.00071	U	0.00075	U	0.00067	U	0.056	U	0.47	U	0.001	U
Dibromomethane	74-95-3			500	NS	mg/kg	0.0014	U	0.0015	U	0.0013	U	0.11	U	0.94	U	0.002	U
1,2,3-Trichloropropane	96-18-4			100	NS	mg/kg	0.0014	U	0.0015	U	0.0013	U	0.11	U	0.94	U	0.002	U
Styrene	100-42-5			3	3	mg/kg	0.00071	U	0.00075	U	0.00067	U	0.056	U	0.47	U	0.001	U
Dichlorodifluoromethane	75-71-8			1000	NS	mg/kg	0.0071	U	0.0075	U	0.0067	U	0.56	U	4.7	U	0.01	U
Acetone	67-64-1			6	6	mg/kg	**0.036**		**0.062**		**0.021**		0.56	U	4.7	U	**0.11**	
Carbon disulfide	75-15-0			100	NS	mg/kg	0.0071	U	0.0075	U	0.0067	U	0.56	U	4.7	U	0.01	U
Methyl ethyl ketone	78-93-3			4	4	mg/kg	0.0071	U	0.0075	U	0.0067	U	0.56	U	4.7	U	0.01	U
Methyl isobutyl ketone	108-10-1			0.4	0.4	mg/kg	0.0071	U	0.0075	U	0.0067	U	0.56	U	4.7	U	0.01	U
2-Hexanone	591-78-6			100	NS	mg/kg	0.0071	U	0.0075	U	0.0067	U	0.56	U	4.7	U	0.01	U
Bromochloromethane	74-97-5				NS	mg/kg	0.0014	U	0.0015	U	0.0013	U	0.11	U	0.94	U	0.002	U
Tetrahydrofuran	109-99-9			500	NS	mg/kg	0.0028	U	0.003	U	0.0027	U	0.22	U	1.9	U	0.004	U

Summary of Phase 2 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

LOCATION							GLX-TPW-615-VOC-7		GLX-TPW-615-VOC-10		GLX-TPW-615-VOC-13		GLX-TPW-602-VOC-2		GLX-TPW-602-VOC-4.5		GLX-TPW-602-VOC-6.5	
SAMPLING DATE							10/20/2019		10/20/2019		10/20/2019		10/20/2019		10/20/2019		10/20/2019	
LAB SAMPLE ID							L1949294-33		L1949294-34		L1949294-35		L1949294-36		L1949294-37		L1949294-38	
SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)																		
	CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
MCP Volatile Organics by EPA 5035					NS													
2,2-Dichloropropane	594-20-7				NS	mg/kg	0.0014	U	0.0015	U	0.0013	U	0.11	U	0.94	U	0.002	U
1,2-Dibromoethane	106-93-4			0.1	NS	mg/kg	0.00071	U	0.00075	U	0.00067	U	0.056	U	0.47	U	0.001	U
1,3-Dichloropropane	142-28-9			500	0.1	mg/kg	0.0014	U	0.0015	U	0.0013	U	0.11	U	0.94	U	0.002	U
1,1,1,2-Tetrachloroethane	630-20-6			0.1	NS	mg/kg	0.00036	U	0.00037	U	0.00034	U	0.028	U	0.24	U	0.0005	U
Bromobenzene	108-86-1			100	NS	mg/kg	0.0014	U	0.0015	U	0.0013	U	0.11	U	0.94	U	0.002	U
n-Butylbenzene	104-51-8				NS	mg/kg	0.00071	U	0.00075	U	0.00067	U	0.056	U	0.47	U	0.001	U
sec-Butylbenzene	135-98-8				NS	mg/kg	0.00071	U	0.00075	U	0.00067	U	0.056	U	0.47	U	0.001	U
tert-Butylbenzene	98-06-6			100	NS	mg/kg	0.0014	U	0.0015	U	0.0013	U	0.11	U	0.94	U	0.002	U
o-Chlorotoluene	95-49-8			100	NS	mg/kg	0.0014	U	0.0015	U	0.0013	U	0.11	U	0.94	U	0.002	U
p-Chlorotoluene	106-43-4				NS	mg/kg	0.0014	U	0.0015	U	0.0013	U	0.11	U	0.94	U	0.002	U
1,2-Dibromo-3-chloropropane	96-12-8			10	30	mg/kg	0.0021	U	0.0022	U	0.002	U	0.17	U	1.4	U	0.003	U
Hexachlorobutadiene	87-68-3			30	NS	mg/kg	0.0028	U	0.003	U	0.0027	U	0.22	U	1.9	U	0.004	U
Isopropylbenzene	98-82-8			1000		mg/kg	0.00071	U	0.00075	U	0.00067	U	0.056	U	0.47	U	0.001	U
p-Isopropyltoluene	99-87-6			100	NS	mg/kg	0.00071	U	0.00075	U	0.00067	U	0.056	U	0.47	U	0.001	U
Naphthalene	91-20-3			4	4	mg/kg	0.0028	U	0.003	U	0.0027	U	**1**		**93**		0.004	U
n-Propylbenzene	103-65-1			100	NS	mg/kg	0.00071	U	0.00075	U	0.00067	U	0.056	U	0.47	U	0.001	U
1,2,3-Trichlorobenzene	87-61-6				NS	mg/kg	0.0014	U	0.0015	U	0.0013	U	0.11	U	0.94	U	0.002	U
1,2,4-Trichlorobenzene	120-82-1			2	2	mg/kg	0.0014	U	0.0015	U	0.0013	U	0.11	U	0.94	U	0.002	U
1,3,5-Trimethylbenzene	108-67-8			10	NS	mg/kg	0.0014	U	0.0015	U	0.0013	U	0.11	U	0.94	U	0.002	U
1,2,4-Trimethylbenzene	95-63-6			1000	NS	mg/kg	0.0014	U	0.0015	U	0.0013	U	0.11	U	**1.2**		0.002	U
Diethyl ether	60-29-7			100	NS	mg/kg	0.0014	U	0.0015	U	0.0013	U	0.11	U	0.94	U	0.002	U
Diisopropyl Ether	108-20-3			100	NS	mg/kg	0.0014	U	0.0015	U	0.0013	U	0.11	U	0.94	U	0.002	U
Ethyl-Tert-Butyl-Ether	637-92-3				NS	mg/kg	0.0014	U	0.0015	U	0.0013	U	0.11	U	0.94	U	0.002	U
Tertiary-Amyl Methyl Ether	994-05-8				NS	mg/kg	0.0014	U	0.0015	U	0.0013	U	0.11	U	0.94	U	0.002	U
1,4-Dioxane	123-91-1			0.2	0.2	mg/kg	0.057	U	0.06	U	0.054	U	4.5	U	38	U	0.08	U

Yellow shading indicates detected result is equal to or above one or more of the listed criteria.
Gray shading indicates nondetect detection limit is above one or more of the listed criteria.
Bold typeface indicates detection above metiond detection limit.

MA-LLAND: Lined Landfill Limits current as of August, 1997
MA-ULAND: UnLined Landfill Limits current as of August, 1997
RCS-1-14: MCP 2014 RCS-1 Reportable Concentrations Criteria effective April 25, 2014.
MCP 2014 S-1 Cleanup Criteria effective April 25, 2014; the lowest S-1/GW-X standard is shown.
**EPA-TCLP: EPA Toxicity Characteristic (TCLP) Regulatory Levels Criteria per 40CFR Part 261 as of September 10, 2015.

U - Not detected at the reported detection limit for the sample.
ND - Not detected.
E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
[1] - The laboratory reported two sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results and lowest detection limits have been tabulated. Refer to laboratory report for further detail.
[2] - The laboratory reported three sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results from the low-level analysis and detection limits from the high-level analysis have been tabulated due to significant internal standard issues with the low-level analysis. Refer to laboratory report for further detail.

Summary of Phase 2 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

	LOCATION							GLX-TPW-603-VOC-1.5		GLX-TPW-603-VOC-3		GLX-TPW-604-VOC-1		GLX-TPW-604-VOC-3		GLX-TPW-605-VOC-1		GLX-TPW-605-VOC-3	
	SAMPLING DATE							10/20/2019		10/20/2019		10/20/2019		10/20/2019		10/20/2019		10/20/2019	
	LAB SAMPLE ID							L1949294-39		L1949294-40		L1949294-41		L1949294-42		L1949294-43		L1949294-44	
	SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	SAMPLE DEPTH (ft.)																		
		CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
General Chemistry																			
	Solids, Total	NONE					%	96.2		95.7		96.3		90.9		92.7		88.2	
MCP Volatile Organics by EPA 5035																			
	Methylene chloride	75-09-2			0.1	NS	mg/kg	0.0033	U	0.0033	U	0.0034	U	0.0045	U	0.0041	U	0.0047	U
	1,1-Dichloroethane	75-34-3			0.4	0.4	mg/kg	0.00066	U	0.00065	U	0.00068	U	0.00089	U	0.00081	U	0.00094	U
	Chloroform	67-66-3			0.2	0.2	mg/kg	0.001	U	0.00098	U	0.001	U	0.0013	U	0.0012	U	0.0014	U
	Carbon tetrachloride	56-23-5			5	5	mg/kg	0.00066	U	0.00065	U	0.00068	U	0.00089	U	0.00081	U	0.00094	U
	1,2-Dichloropropane	78-87-5			0.1	0.1	mg/kg	0.00066	U	0.00065	U	0.00068	U	0.00089	U	0.00081	U	0.00094	U
	Dibromochloromethane	124-48-1			0.005	0.005	mg/kg	0.00066	U	0.00065	U	0.00068	U	0.00089	U	0.00081	U	0.00094	U
	1,1,2-Trichloroethane	79-00-5			0.1	0.1	mg/kg	0.00066	U	0.00065	U	0.00068	U	0.00089	U	0.00081	U	0.00094	U
	Tetrachloroethene	127-18-4			1	1	mg/kg	0.00033	U	0.00033	U	0.00034	U	0.00045	U	0.00041	U	0.00047	U
	Chlorobenzene	108-90-7			1	1	mg/kg	0.00033	U	0.00033	U	0.00034	U	0.00045	U	0.00041	U	0.00047	U
	Trichlorofluoromethane	75-69-4			1000	NS	mg/kg	0.0027	U	0.0026	U	0.0027	U	0.0036	U	0.0032	U	0.0038	U
	1,2-Dichloroethane	107-06-2			0.1	0.1	mg/kg	0.00066	U	0.00065	U	0.00068	U	0.00089	U	0.00081	U	0.00094	U
	1,1,1-Trichloroethane	71-55-6			30	30	mg/kg	0.00033	U	0.00033	U	0.00034	U	0.00045	U	0.00041	U	0.00047	U
	Bromodichloromethane	75-27-4			0.1	0.1	mg/kg	0.00033	U	0.00033	U	0.00034	U	0.00045	U	0.00041	U	0.00047	U
	trans-1,3-Dichloropropene	10061-02-6			0.01	NS	mg/kg	0.00066	U	0.00065	U	0.00068	U	0.00089	U	0.00081	U	0.00094	U
	cis-1,3-Dichloropropene	10061-01-5			0.01	NS	mg/kg	0.00033	U	0.00033	U	0.00034	U	0.00045	U	0.00041	U	0.00047	U
	1,3-Dichloropropene, Total	542-75-6			0.01	0.01	mg/kg	0.00033	U	0.00033	U	0.00034	U	0.00045	U	0.00041	U	0.00047	U
	1,1-Dichloropropene	563-58-6				NS	mg/kg	0.00033	U	0.00033	U	0.00034	U	0.00045	U	0.00041	U	0.00047	U
	Bromoform	75-25-2			0.1	0.1	mg/kg	0.0027	U	0.0026	U	0.0027	U	0.0036	U	0.0032	U	0.0038	U
	1,1,2,2-Tetrachloroethane	79-34-5			0.005	0.005	mg/kg	0.00033	U	0.00033	U	0.00034	U	0.00045	U	0.00041	U	0.00047	U
	Benzene	71-43-2			2	2	mg/kg	0.00033	U	0.00033	U	0.00034	U	**0.00061**		0.00041	U	0.00047	U
	Toluene	108-88-3			30	30	mg/kg	0.00066	U	0.00065	U	0.00068	U	0.00089	U	0.00081	U	0.00094	U
	Ethylbenzene	100-41-4			40	40	mg/kg	0.00066	U	0.00065	U	0.00068	U	0.00089	U	0.00081	U	0.00094	U
	Chloromethane	74-87-3			100	NS	mg/kg	0.0027	U	0.0026	U	0.0027	U	0.0036	U	0.0032	U	0.0038	U
	Bromomethane	74-83-9			0.5	0.5	mg/kg	0.0013	U	0.0013	U	0.0014	U	0.0018	U	0.0016	U	0.0019	U
	Vinyl chloride	75-01-4			0.7	0.7	mg/kg	0.00066	U	0.00065	U	0.00068	U	0.00089	U	0.00081	U	0.00094	U
	Chloroethane	75-00-3			100	NS	mg/kg	0.0013	U	0.0013	U	0.0014	U	0.0018	U	0.0016	U	0.0019	U
	1,1-Dichloroethene	75-35-4			3	3	mg/kg	0.00066	U	0.00065	U	0.00068	U	0.00089	U	0.00081	U	0.00094	U
	trans-1,2-Dichloroethene	156-60-5			1	1	mg/kg	0.001	U	0.00098	U	0.001	U	0.0013	U	0.0012	U	0.0014	U
	Trichloroethene	79-01-6			0.3	0.3	mg/kg	0.00033	U	0.00033	U	0.00034	U	0.00045	U	0.00041	U	0.00047	U
	1,2-Dichlorobenzene	95-50-1			9	9	mg/kg	0.0013	U	0.0013	U	0.0014	U	0.0018	U	0.0016	U	0.0019	U
	1,3-Dichlorobenzene	541-73-1			3	3	mg/kg	0.0013	U	0.0013	U	0.0014	U	0.0018	U	0.0016	U	0.0019	U
	1,4-Dichlorobenzene	106-46-7			0.7	0.7	mg/kg	0.0013	U	0.0013	U	0.0014	U	0.0018	U	0.0016	U	0.0019	U
	Methyl tert butyl ether	1634-04-4			0.1	0.1	mg/kg	0.0013	U	0.0013	U	0.0014	U	0.0018	U	0.0016	U	0.0019	U
	p/m-Xylene	179601-23-1			100	100	mg/kg	0.0013	U	0.0013	U	0.0014	U	0.0018	U	0.0016	U	0.0019	U
	o-Xylene	95-47-6			100	100	mg/kg	0.00066	U	0.00065	U	0.00068	U	0.00089	U	0.00081	U	0.00094	U
	Xylenes, Total	1330-20-7			100	100	mg/kg	0.00066	U	0.00065	U	0.00068	U	0.00089	U	0.00081	U	0.00094	U
	cis-1,2-Dichloroethene	156-59-2			0.1	0.1	mg/kg	0.00066	U	0.00065	U	0.00068	U	0.00089	U	0.00081	U	0.00094	U
	1,2-Dichloroethene, Total	540-59-0				NS	mg/kg	0.00066	U	0.00065	U	0.00068	U	0.00089	U	0.00081	U	0.00094	U
	Dibromomethane	74-95-3			500	NS	mg/kg	0.0013	U	0.0013	U	0.0014	U	0.0018	U	0.0016	U	0.0019	U
	1,2,3-Trichloropropane	96-18-4			100	NS	mg/kg	0.0013	U	0.0013	U	0.0014	U	0.0018	U	0.0016	U	0.0019	U
	Styrene	100-42-5			3	3	mg/kg	0.00066	U	0.00065	U	0.00068	U	0.00089	U	0.00081	U	0.00094	U
	Dichlorodifluoromethane	75-71-8			1000	NS	mg/kg	0.0066	U	0.0065	U	0.0068	U	0.0089	U	0.0081	U	0.0094	U
	Acetone	67-64-1			6	6	mg/kg	**0.022**		**0.027**		**0.049**		**0.041**		**0.034**		**0.092**	
	Carbon disulfide	75-15-0			100	NS	mg/kg	0.0066	U	0.0065	U	0.0068	U	0.0089	U	0.0081	U	0.0094	U
	Methyl ethyl ketone	78-93-3			4	4	mg/kg	0.0066	U	0.0065	U	0.0068	U	0.0089	U	0.0081	U	0.0094	U
	Methyl isobutyl ketone	108-10-1			0.4	0.4	mg/kg	0.0066	U	0.0065	U	0.0068	U	0.0089	U	0.0081	U	0.0094	U
	2-Hexanone	591-78-6			100	NS	mg/kg	0.0066	U	0.0065	U	0.0068	U	0.0089	U	0.0081	U	0.0094	U
	Bromochloromethane	74-97-5				NS	mg/kg	0.0013	U	0.0013	U	0.0014	U	0.0018	U	0.0016	U	0.0019	U
	Tetrahydrofuran	109-99-9			500	NS	mg/kg	0.0027	U	0.0026	U	0.0027	U	0.0036	U	0.0032	U	0.0038	U

Summary of Phase 2 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

	LOCATION							GLX-TPW-603-VOC-1.5		GLX-TPW-603-VOC-3		GLX-TPW-604-VOC-1		GLX-TPW-604-VOC-3		GLX-TPW-605-VOC-1		GLX-TPW-605-VOC-3	
	SAMPLING DATE							10/20/2019		10/20/2019		10/20/2019		10/20/2019		10/20/2019		10/20/2019	
	LAB SAMPLE ID							L1949294-39		L1949294-40		L1949294-41		L1949294-42		L1949294-43		L1949294-44	
	SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	SAMPLE DEPTH (ft.)																		
		CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
MCP Volatile Organics by EPA 5035						NS													
	2,2-Dichloropropane	594-20-7				NS	mg/kg	0.0013	U	0.0013	U	0.0014	U	0.0018	U	0.0016	U	0.0019	U
	1,2-Dibromoethane	106-93-4			0.1	NS	mg/kg	0.00066	U	0.00065	U	0.00068	U	0.00089	U	0.00081	U	0.00094	U
	1,3-Dichloropropane	142-28-9			500	0.1	mg/kg	0.0013	U	0.0013	U	0.0014	U	0.0018	U	0.0016	U	0.0019	U
	1,1,1,2-Tetrachloroethane	630-20-6			0.1	NS	mg/kg	0.00033	U	0.00033	U	0.00034	U	0.00045	U	0.00041	U	0.00047	U
	Bromobenzene	108-86-1			100	NS	mg/kg	0.0013	U	0.0013	U	0.0014	U	0.0018	U	0.0016	U	0.0019	U
	n-Butylbenzene	104-51-8				NS	mg/kg	0.00066	U	0.00065	U	0.00068	U	0.00089	U	0.00081	U	0.00094	U
	sec-Butylbenzene	135-98-8				NS	mg/kg	0.00066	U	0.00065	U	0.00068	U	0.00089	U	0.00081	U	0.00094	U
	tert-Butylbenzene	98-06-6			100	NS	mg/kg	0.0013	U	0.0013	U	0.0014	U	0.0018	U	0.0016	U	0.0019	U
	o-Chlorotoluene	95-49-8			100	NS	mg/kg	0.0013	U	0.0013	U	0.0014	U	0.0018	U	0.0016	U	0.0019	U
	p-Chlorotoluene	106-43-4				NS	mg/kg	0.0013	U	0.0013	U	0.0014	U	0.0018	U	0.0016	U	0.0019	U
	1,2-Dibromo-3-chloropropane	96-12-8			10	30	mg/kg	0.002	U	0.002	U	0.002	U	0.0027	U	0.0024	U	0.0028	U
	Hexachlorobutadiene	87-68-3			30	NS	mg/kg	0.0027	U	0.0026	U	0.0027	U	0.0036	U	0.0032	U	0.0038	U
	Isopropylbenzene	98-82-8			1000		mg/kg	0.00066	U	0.00065	U	0.00068	U	0.00089	U	0.00081	U	0.00094	U
	p-Isopropyltoluene	99-87-6			100	NS	mg/kg	0.00066	U	0.00065	U	0.00068	U	0.00089	U	0.00081	U	0.00094	U
	Naphthalene	91-20-3			4	4	mg/kg	0.0027	U	0.0026	U	0.0027	U	0.0036	U	0.0032	U	0.0038	U
	n-Propylbenzene	103-65-1			100	NS	mg/kg	0.00066	U	0.00065	U	0.00068	U	0.00089	U	0.00081	U	0.00094	U
	1,2,3-Trichlorobenzene	87-61-6				NS	mg/kg	0.0013	U	0.0013	U	0.0014	U	0.0018	U	0.0016	U	0.0019	U
	1,2,4-Trichlorobenzene	120-82-1			2	2	mg/kg	0.0013	U	0.0013	U	0.0014	U	0.0018	U	0.0016	U	0.0019	U
	1,3,5-Trimethylbenzene	108-67-8			10	NS	mg/kg	0.0013	U	0.0013	U	0.0014	U	0.0018	U	0.0016	U	0.0019	U
	1,2,4-Trimethylbenzene	95-63-6			1000	NS	mg/kg	0.0013	U	0.0013	U	0.0014	U	0.0018	U	0.0016	U	0.0019	U
	Diethyl ether	60-29-7			100	NS	mg/kg	0.0013	U	0.0013	U	0.0014	U	0.0018	U	0.0016	U	0.0019	U
	Diisopropyl Ether	108-20-3			100	NS	mg/kg	0.0013	U	0.0013	U	0.0014	U	0.0018	U	0.0016	U	0.0019	U
	Ethyl-Tert-Butyl-Ether	637-92-3				NS	mg/kg	0.0013	U	0.0013	U	0.0014	U	0.0018	U	0.0016	U	0.0019	U
	Tertiary-Amyl Methyl Ether	994-05-8				NS	mg/kg	0.0013	U	0.0013	U	0.0014	U	0.0018	U	0.0016	U	0.0019	U
	1,4-Dioxane	123-91-1			0.2	0.2	mg/kg	0.053	U	0.052	U	0.054	U	0.072	U	0.065	U	0.075	U

Yellow shading indicates detected result is equal to or above one or more of the listed criteria.
Gray shading indicates nondetect detection limit is above one or more of the listed criteria.
Bold typeface indicates detection above metiond detection limit.

MA-LLAND: Lined Landfill Limits current as of August, 1997
MA-ULAND: UnLined Landfill Limits current as of August, 1997
RCS-1-14: MCP 2014 RCS-1 Reportable Concentrations Criteria effective April 25, 2014.
MCP 2014 S-1 Cleanup Criteria effective April 25, 2014; the lowest S-1/GW-X standard is shown.
**EPA-TCLP: EPA Toxicity Characteristic (TCLP) Regulatory Levels Criteria per 40CFR Part 261 as of September 10, 2015.

U - Not detected at the reported detection limit for the sample.
ND - Not detected.
E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
[1] - The laboratory reported two sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results and lowest detection limits have been tabulated. Refer to laboratory report for further detail.
[2] - The laboratory reported three sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results from the low-level analysis and detection limits from the high-level analysis have been tabulated due to significant internal standard issues with the low-level analysis. Refer to laboratory report for further detail.

Summary of Phase 2 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

LOCATION							DUPA		GLX-TPW-605-VOC-8		GLX-TPW-607-VOC-.6		GLX-TPW-607-VOC-4.6		GLX-TPW-611-VOC-1.5		GLX-TPW-611-VOC-4	
SAMPLING DATE							10/20/2019		10/20/2019		10/20/2019		10/20/2019		10/20/2019		10/20/2019	
LAB SAMPLE ID							L1949294-45		L1949294-46		L1949294-47		L1949294-48		L1949294-49		L1949294-50	
SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)																		
	CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
General Chemistry																		
Solids, Total	NONE					%	88.4		87.1		93.3		90.9		85		93.8	
MCP Volatile Organics by EPA 5035																		
Methylene chloride	75-09-2			0.1	NS	mg/kg	0.005	U	0.0036	U	0.0038	U	0.0039	U	0.0049	U	0.0037	U
1,1-Dichloroethane	75-34-3			0.4	0.4	mg/kg	0.001	U	0.00072	U	0.00075	U	0.00078	U	0.00098	U	0.00074	U
Chloroform	67-66-3			0.2	0.2	mg/kg	0.0015	U	0.0011	U	0.0011	U	0.0012	U	0.0015	U	0.0011	U
Carbon tetrachloride	56-23-5			5	5	mg/kg	0.001	U	0.00072	U	0.00075	U	0.00078	U	0.00098	U	0.00074	U
1,2-Dichloropropane	78-87-5			0.1	0.1	mg/kg	0.001	U	0.00072	U	0.00075	U	0.00078	U	0.00098	U	0.00074	U
Dibromochloromethane	124-48-1			0.005	0.005	mg/kg	0.001	U	0.00072	U	0.00075	U	0.00078	U	0.00098	U	0.00074	U
1,1,2-Trichloroethane	79-00-5			0.1	0.1	mg/kg	0.001	U	0.00072	U	0.00075	U	0.00078	U	0.00098	U	0.00074	U
Tetrachloroethene	127-18-4			1	1	mg/kg	0.0005	U	0.00036	U	0.00038	U	0.00039	U	0.00049	U	0.00037	U
Chlorobenzene	108-90-7			1	1	mg/kg	0.0005	U	0.00036	U	0.00038	U	0.00039	U	0.00049	U	0.00037	U
Trichlorofluoromethane	75-69-4			1000	NS	mg/kg	0.004	U	0.0029	U	0.003	U	0.0031	U	0.0039	U	0.003	U
1,2-Dichloroethane	107-06-2			0.1	0.1	mg/kg	0.001	U	0.00072	U	0.00075	U	0.00078	U	0.00098	U	0.00074	U
1,1,1-Trichloroethane	71-55-6			30	30	mg/kg	0.0005	U	0.00036	U	0.00038	U	0.00039	U	0.00049	U	0.00037	U
Bromodichloromethane	75-27-4			0.1	0.1	mg/kg	0.0005	U	0.00036	U	0.00038	U	0.00039	U	0.00049	U	0.00037	U
trans-1,3-Dichloropropene	10061-02-6			0.01	NS	mg/kg	0.001	U	0.00072	U	0.00075	U	0.00078	U	0.00098	U	0.00074	U
cis-1,3-Dichloropropene	10061-01-5			0.01	NS	mg/kg	0.0005	U	0.00036	U	0.00038	U	0.00039	U	0.00049	U	0.00037	U
1,3-Dichloropropene, Total	542-75-6			0.01	0.01	mg/kg	0.0005	U	0.00036	U	0.00038	U	0.00039	U	0.00049	U	0.00037	U
1,1-Dichloropropene	563-58-6				NS	mg/kg	0.0005	U	0.00036	U	0.00038	U	0.00039	U	0.00049	U	0.00037	U
Bromoform	75-25-2			0.1	0.1	mg/kg	0.004	U	0.0029	U	0.003	U	0.0031	U	0.0039	U	0.003	U
1,1,2,2-Tetrachloroethane	79-34-5			0.005	0.005	mg/kg	0.0005	U	0.00036	U	0.00038	U	0.00039	U	0.00049	U	0.00037	U
Benzene	71-43-2			2	2	mg/kg	0.0005	U	0.00036	U	0.00038	U	0.00039	U	0.00049	U	0.00037	U
Toluene	108-88-3			30	30	mg/kg	0.001	U	0.00072	U	0.00075	U	0.00078	U	0.00098	U	0.00074	U
Ethylbenzene	100-41-4			40	40	mg/kg	0.001	U	0.00072	U	0.00075	U	0.00078	U	0.00098	U	0.00074	U
Chloromethane	74-87-3			100	NS	mg/kg	0.004	U	0.0029	U	0.003	U	0.0031	U	0.0039	U	0.003	U
Bromomethane	74-83-9			0.5	0.5	mg/kg	0.002	U	0.0014	U	0.0015	U	0.0016	U	0.002	U	0.0015	U
Vinyl chloride	75-01-4			0.7	0.7	mg/kg	0.001	U	0.00072	U	0.00075	U	0.00078	U	0.00098	U	0.00074	U
Chloroethane	75-00-3			100	NS	mg/kg	0.002	U	0.0014	U	0.0015	U	0.0016	U	0.002	U	0.0015	U
1,1-Dichloroethene	75-35-4			3	3	mg/kg	0.001	U	0.00072	U	0.00075	U	0.00078	U	0.00098	U	0.00074	U
trans-1,2-Dichloroethene	156-60-5			1	1	mg/kg	0.0015	U	0.0011	U	0.0011	U	0.0012	U	0.0015	U	0.0011	U
Trichloroethene	79-01-6			0.3	0.3	mg/kg	0.0005	U	0.00036	U	0.00038	U	0.00039	U	0.00049	U	0.00037	U
1,2-Dichlorobenzene	95-50-1			9	9	mg/kg	0.002	U	0.0014	U	0.0015	U	0.0016	U	0.002	U	0.0015	U
1,3-Dichlorobenzene	541-73-1			3	3	mg/kg	0.002	U	0.0014	U	0.0015	U	0.0016	U	0.002	U	0.0015	U
1,4-Dichlorobenzene	106-46-7			0.7	0.7	mg/kg	0.002	U	0.0014	U	0.0015	U	0.0016	U	0.002	U	0.0015	U
Methyl tert butyl ether	1634-04-4			0.1	0.1	mg/kg	0.002	U	0.0014	U	0.0015	U	0.0016	U	0.002	U	0.0015	U
p/m-Xylene	179601-23-1			100	100	mg/kg	0.002	U	0.0014	U	0.0015	U	0.0016	U	0.002	U	0.0015	U
o-Xylene	95-47-6			100	100	mg/kg	0.001	U	0.00072	U	0.00075	U	0.00078	U	0.00098	U	0.00074	U
Xylenes, Total	1330-20-7			100	100	mg/kg	0.001	U	0.00072	U	0.00075	U	0.00078	U	0.00098	U	0.00074	U
cis-1,2-Dichloroethene	156-59-2			0.1	0.1	mg/kg	0.001	U	0.00072	U	0.00075	U	0.00078	U	0.00098	U	0.00074	U
1,2-Dichloroethene, Total	540-59-0				NS	mg/kg	0.001	U	0.00072	U	0.00075	U	0.00078	U	0.00098	U	0.00074	U
Dibromomethane	74-95-3			500	NS	mg/kg	0.002	U	0.0014	U	0.0015	U	0.0016	U	0.002	U	0.0015	U
1,2,3-Trichloropropane	96-18-4			100	NS	mg/kg	0.002	U	0.0014	U	0.0015	U	0.0016	U	0.002	U	0.0015	U
Styrene	100-42-5			3	3	mg/kg	0.001	U	0.00072	U	0.00075	U	0.00078	U	0.00098	U	0.00074	U
Dichlorodifluoromethane	75-71-8			1000	NS	mg/kg	0.01	U	0.0072	U	0.0075	U	0.0078	U	0.0098	U	0.0074	U
Acetone	67-64-1			6	6	mg/kg	**0.061**		0.018	U	**0.066**		**0.03**		**0.091**		**0.028**	
Carbon disulfide	75-15-0			100	NS	mg/kg	0.01	U	0.0072	U	0.0075	U	0.0078	U	0.0098	U	0.0074	U
Methyl ethyl ketone	78-93-3			4	4	mg/kg	0.01	U	0.0072	U	0.0075	U	0.0078	U	0.0098	U	0.0074	U
Methyl isobutyl ketone	108-10-1			0.4	0.4	mg/kg	0.01	U	0.0072	U	0.0075	U	0.0078	U	0.0098	U	0.0074	U
2-Hexanone	591-78-6			100	NS	mg/kg	0.01	U	0.0072	U	0.0075	U	0.0078	U	0.0098	U	0.0074	U
Bromochloromethane	74-97-5				NS	mg/kg	0.002	U	0.0014	U	0.0015	U	0.0016	U	0.002	U	0.0015	U
Tetrahydrofuran	109-99-9			500	NS	mg/kg	0.004	U	0.0029	U	0.003	U	0.0031	U	**0.0039**		0.003	U

Summary of Phase 2 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

	LOCATION							DUPA		GLX-TPW-605-VOC-8		GLX-TPW-607-VOC-.6		GLX-TPW-607-VOC-4.6		GLX-TPW-611-VOC-1.5		GLX-TPW-611-VOC-4	
	SAMPLING DATE							10/20/2019		10/20/2019		10/20/2019		10/20/2019		10/20/2019		10/20/2019	
	LAB SAMPLE ID							L1949294-45		L1949294-46		L1949294-47		L1949294-48		L1949294-49		L1949294-50	
	SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	SAMPLE DEPTH (ft.)																		
		CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
MCP Volatile Organics by EPA 5035						NS													
	2,2-Dichloropropane	594-20-7				NS	mg/kg	0.002	U	0.0014	U	0.0015	U	0.0016	U	0.002	U	0.0015	U
	1,2-Dibromoethane	106-93-4			0.1	NS	mg/kg	0.001	U	0.00072	U	0.00075	U	0.00078	U	0.00098	U	0.00074	U
	1,3-Dichloropropane	142-28-9			500	0.1	mg/kg	0.002	U	0.0014	U	0.0015	U	0.0016	U	0.002	U	0.0015	U
	1,1,1,2-Tetrachloroethane	630-20-6			0.1	NS	mg/kg	0.0005	U	0.00036	U	0.00038	U	0.00039	U	0.00049	U	0.00037	U
	Bromobenzene	108-86-1			100	NS	mg/kg	0.002	U	0.0014	U	0.0015	U	0.0016	U	0.002	U	0.0015	U
	n-Butylbenzene	104-51-8				NS	mg/kg	0.001	U	0.00072	U	0.00075	U	0.00078	U	0.00098	U	0.00074	U
	sec-Butylbenzene	135-98-8				NS	mg/kg	0.001	U	0.00072	U	0.00075	U	0.00078	U	0.00098	U	0.00074	U
	tert-Butylbenzene	98-06-6			100	NS	mg/kg	0.002	U	0.0014	U	0.0015	U	0.0016	U	0.002	U	0.0015	U
	o-Chlorotoluene	95-49-8			100	NS	mg/kg	0.002	U	0.0014	U	0.0015	U	0.0016	U	0.002	U	0.0015	U
	p-Chlorotoluene	106-43-4				NS	mg/kg	0.002	U	0.0014	U	0.0015	U	0.0016	U	0.002	U	0.0015	U
	1,2-Dibromo-3-chloropropane	96-12-8			10	30	mg/kg	0.003	U	0.0022	U	0.0022	U	0.0024	U	0.0029	U	0.0022	U
	Hexachlorobutadiene	87-68-3			30	NS	mg/kg	0.004	U	0.0029	U	0.003	U	0.0031	U	0.0039	U	0.003	U
	Isopropylbenzene	98-82-8			1000		mg/kg	0.001	U	0.00072	U	0.00075	U	0.00078	U	0.00098	U	0.00074	U
	p-Isopropyltoluene	99-87-6			100	NS	mg/kg	0.001	U	0.00072	U	0.00075	U	0.00078	U	0.00098	U	0.00074	U
	Naphthalene	91-20-3			4	4	mg/kg	0.004	U	0.0029	U	0.003	U	0.0031	U	0.0039	U	0.003	U
	n-Propylbenzene	103-65-1			100	NS	mg/kg	0.001	U	0.00072	U	0.00075	U	0.00078	U	0.00098	U	0.00074	U
	1,2,3-Trichlorobenzene	87-61-6				NS	mg/kg	0.002	U	0.0014	U	0.0015	U	0.0016	U	0.002	U	0.0015	U
	1,2,4-Trichlorobenzene	120-82-1			2	2	mg/kg	0.002	U	0.0014	U	0.0015	U	0.0016	U	0.002	U	0.0015	U
	1,3,5-Trimethylbenzene	108-67-8			10	NS	mg/kg	0.002	U	0.0014	U	0.0015	U	0.0016	U	0.002	U	0.0015	U
	1,2,4-Trimethylbenzene	95-63-6			1000	NS	mg/kg	0.002	U	0.0014	U	0.0015	U	0.0016	U	0.002	U	0.0015	U
	Diethyl ether	60-29-7			100	NS	mg/kg	0.002	U	0.0014	U	0.0015	U	0.0016	U	0.002	U	0.0015	U
	Diisopropyl Ether	108-20-3			100	NS	mg/kg	0.002	U	0.0014	U	0.0015	U	0.0016	U	0.002	U	0.0015	U
	Ethyl-Tert-Butyl-Ether	637-92-3				NS	mg/kg	0.002	U	0.0014	U	0.0015	U	0.0016	U	0.002	U	0.0015	U
	Tertiary-Amyl Methyl Ether	994-05-8				NS	mg/kg	0.002	U	0.0014	U	0.0015	U	0.0016	U	0.002	U	0.0015	U
	1,4-Dioxane	123-91-1			0.2	0.2	mg/kg	0.08	U	0.057	U	0.06	U	0.063	U	0.078	U	0.06	U

Yellow shading indicates detected result is equal to or above one or more of the listed criteria.
Gray shading indicates nondetect detection limit is above one or more of the listed criteria.
Bold typeface indicates detection above metiond detection limit.

MA-LLAND: Lined Landfill Limits current as of August, 1997
MA-ULAND: UnLined Landfill Limits current as of August, 1997
RCS-1-14: MCP 2014 RCS-1 Reportable Concentrations Criteria effective April 25, 2014.
MCP 2014 S-1 Cleanup Criteria effective April 25, 2014; the lowest S-1/GW-X standard is shown.
**EPA-TCLP: EPA Toxicity Characteristic (TCLP) Regulatory Levels Criteria per 40CFR Part 261 as of September 10, 2015.

U - Not detected at the reported detection limit for the sample.
ND - Not detected.
E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
[1] - The laboratory reported two sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results and lowest detection limits have been tabulated. Refer to laboratory report for further detail.
[2] - The laboratory reported three sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results from the low-level analysis and detection limits from the high-level analysis have been tabulated due to significant internal standard issues with the low-level analysis. Refer to laboratory report for further detail.

Summary of Phase 2 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

	LOCATION							GLX-TPW-612-VOC-1.5		GLX-TPW-612-VOC-4		GLX-TPW-613-VOC-1.5		GLX-TPW-613-VOC-4		GLX-TPW-614-VOC-1		GLX-TPW-614-VOC-4	
	SAMPLING DATE							10/20/2019		10/20/2019		10/20/2019		10/20/2019		10/20/2019		10/20/2019	
	LAB SAMPLE ID							L1949294-51		L1949294-52		L1949294-53		L1949294-54		L1949294-55		L1949294-56	
	SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	SAMPLE DEPTH (ft.)																		
		CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
General Chemistry																			
	Solids, Total	NONE					%	94.2		92.6		93.4		92.5		92.5		93.8	
MCP Volatile Organics by EPA 5035																			
	Methylene chloride	75-09-2			0.1	NS	mg/kg	0.0042	U	0.0038	U	0.0034	U	0.0049	U	0.0043	U	0.0035	U
	1,1-Dichloroethane	75-34-3			0.4	0.4	mg/kg	0.00084	U	0.00076	U	0.00068	U	0.00098	U	0.00085	U	0.0007	U
	Chloroform	67-66-3			0.2	0.2	mg/kg	0.0013	U	0.0011	U	0.001	U	0.0015	U	0.0013	U	0.001	U
	Carbon tetrachloride	56-23-5			5	5	mg/kg	0.00084	U	0.00076	U	0.00068	U	0.00098	U	0.00085	U	0.0007	U
	1,2-Dichloropropane	78-87-5			0.1	0.1	mg/kg	0.00084	U	0.00076	U	0.00068	U	0.00098	U	0.00085	U	0.0007	U
	Dibromochloromethane	124-48-1			0.005	0.005	mg/kg	0.00084	U	0.00076	U	0.00068	U	0.00098	U	0.00085	U	0.0007	U
	1,1,2-Trichloroethane	79-00-5			0.1	0.1	mg/kg	0.00084	U	0.00076	U	0.00068	U	0.00098	U	0.00085	U	0.0007	U
	Tetrachloroethene	127-18-4			1	1	mg/kg	0.00042	U	0.00038	U	0.00034	U	0.00049	U	0.00043	U	0.00035	U
	Chlorobenzene	108-90-7			1	1	mg/kg	0.00042	U	0.00038	U	0.00034	U	0.00049	U	0.00043	U	0.00035	U
	Trichlorofluoromethane	75-69-4			1000	NS	mg/kg	0.0034	U	0.003	U	0.0027	U	0.0039	U	0.0034	U	0.0028	U
	1,2-Dichloroethane	107-06-2			0.1	0.1	mg/kg	0.00084	U	0.00076	U	0.00068	U	0.00098	U	0.00085	U	0.0007	U
	1,1,1-Trichloroethane	71-55-6			30	30	mg/kg	0.00042	U	0.00038	U	0.00034	U	0.00049	U	0.00043	U	0.00035	U
	Bromodichloromethane	75-27-4			0.1	0.1	mg/kg	0.00042	U	0.00038	U	0.00034	U	0.00049	U	0.00043	U	0.00035	U
	trans-1,3-Dichloropropene	10061-02-6			0.01	NS	mg/kg	0.00084	U	0.00076	U	0.00068	U	0.00098	U	0.00085	U	0.0007	U
	cis-1,3-Dichloropropene	10061-01-5			0.01	NS	mg/kg	0.00042	U	0.00038	U	0.00034	U	0.00049	U	0.00043	U	0.00035	U
	1,3-Dichloropropene, Total	542-75-6			0.01	0.01	mg/kg	0.00042	U	0.00038	U	0.00034	U	0.00049	U	0.00043	U	0.00035	U
	1,1-Dichloropropene	563-58-6				NS	mg/kg	0.00042	U	0.00038	U	0.00034	U	0.00049	U	0.00043	U	0.00035	U
	Bromoform	75-25-2			0.1	0.1	mg/kg	0.0034	U	0.003	U	0.0027	U	0.0039	U	0.0034	U	0.0028	U
	1,1,2,2-Tetrachloroethane	79-34-5			0.005	0.005	mg/kg	0.00042	U	0.00038	U	0.00034	U	0.00049	U	0.00043	U	0.00035	U
	Benzene	71-43-2			2	2	mg/kg	0.00042	U	0.00038	U	0.00034	U	0.00049	U	0.00043	U	0.00035	U
	Toluene	108-88-3			30	30	mg/kg	0.00084	U	0.00076	U	0.00068	U	0.00098	U	0.00085	U	0.0007	U
	Ethylbenzene	100-41-4			40	40	mg/kg	0.00084	U	0.00076	U	0.00068	U	0.00098	U	0.00085	U	0.0007	U
	Chloromethane	74-87-3			100	NS	mg/kg	0.0034	U	0.003	U	0.0027	U	0.0039	U	0.0034	U	0.0028	U
	Bromomethane	74-83-9			0.5	0.5	mg/kg	0.0017	U	0.0015	U	0.0014	U	0.002	U	0.0017	U	0.0014	U
	Vinyl chloride	75-01-4			0.7	0.7	mg/kg	0.00084	U	0.00076	U	0.00068	U	0.00098	U	0.00085	U	0.0007	U
	Chloroethane	75-00-3			100	NS	mg/kg	0.0017	U	0.0015	U	0.0014	U	0.002	U	0.0017	U	0.0014	U
	1,1-Dichloroethene	75-35-4			3	3	mg/kg	0.00084	U	0.00076	U	0.00068	U	0.00098	U	0.00085	U	0.0007	U
	trans-1,2-Dichloroethene	156-60-5			1	1	mg/kg	0.0013	U	0.0011	U	0.001	U	0.0015	U	0.0013	U	0.001	U
	Trichloroethene	79-01-6			0.3	0.3	mg/kg	0.00042	U	0.00038	U	0.00034	U	0.00049	U	0.00043	U	0.00035	U
	1,2-Dichlorobenzene	95-50-1			9	9	mg/kg	0.0017	U	0.0015	U	0.0014	U	0.002	U	0.0017	U	0.0014	U
	1,3-Dichlorobenzene	541-73-1			3	3	mg/kg	0.0017	U	0.0015	U	0.0014	U	0.002	U	0.0017	U	0.0014	U
	1,4-Dichlorobenzene	106-46-7			0.7	0.7	mg/kg	0.0017	U	0.0015	U	0.0014	U	0.002	U	0.0017	U	0.0014	U
	Methyl tert butyl ether	1634-04-4			0.1	0.1	mg/kg	0.0017	U	0.0015	U	0.0014	U	0.002	U	0.0017	U	0.0014	U
	p/m-Xylene	179601-23-1			100	100	mg/kg	0.0017	U	0.0015	U	0.0014	U	0.002	U	0.0017	U	0.0014	U
	o-Xylene	95-47-6			100	100	mg/kg	0.00084	U	0.00076	U	0.00068	U	0.00098	U	0.00085	U	0.0007	U
	Xylenes, Total	1330-20-7			100	100	mg/kg	0.00084	U	0.00076	U	0.00068	U	0.00098	U	0.00085	U	0.0007	U
	cis-1,2-Dichloroethene	156-59-2			0.1	0.1	mg/kg	0.00084	U	0.00076	U	0.00068	U	0.00098	U	0.00085	U	0.0007	U
	1,2-Dichloroethene, Total	540-59-0				NS	mg/kg	0.00084	U	0.00076	U	0.00068	U	0.00098	U	0.00085	U	0.0007	U
	Dibromomethane	74-95-3			500	NS	mg/kg	0.0017	U	0.0015	U	0.0014	U	0.002	U	0.0017	U	0.0014	U
	1,2,3-Trichloropropane	96-18-4			100	NS	mg/kg	0.0017	U	0.0015	U	0.0014	U	0.002	U	0.0017	U	0.0014	U
	Styrene	100-42-5			3	3	mg/kg	0.00084	U	0.00076	U	0.00068	U	0.00098	U	0.00085	U	0.0007	U
	Dichlorodifluoromethane	75-71-8			1000	NS	mg/kg	0.0084	U	0.0076	U	0.0068	U	0.0098	U	0.0085	U	0.007	U
	Acetone	67-64-1			6	6	mg/kg	**0.08**		**0.059**		**0.028**		**0.032**		**0.066**		0.017	U
	Carbon disulfide	75-15-0			100	NS	mg/kg	0.0084	U	0.0076	U	0.0068	U	0.0098	U	0.0085	U	0.007	U
	Methyl ethyl ketone	78-93-3			4	4	mg/kg	0.0084	U	0.0076	U	0.0068	U	0.0098	U	0.0085	U	0.007	U
	Methyl isobutyl ketone	108-10-1			0.4	0.4	mg/kg	0.0084	U	0.0076	U	0.0068	U	0.0098	U	0.0085	U	0.007	U
	2-Hexanone	591-78-6			100	NS	mg/kg	0.0084	U	0.0076	U	0.0068	U	0.0098	U	0.0085	U	0.007	U
	Bromochloromethane	74-97-5				NS	mg/kg	0.0017	U	0.0015	U	0.0014	U	0.002	U	0.0017	U	0.0014	U
	Tetrahydrofuran	109-99-9			500	NS	mg/kg	0.0034	U	0.003	U	0.0027	U	0.0039	U	0.0034	U	0.0028	U

Summary of Phase 2 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

LOCATION							GLX-TPW-612-VOC-1.5		GLX-TPW-612-VOC-4		GLX-TPW-613-VOC-1.5		GLX-TPW-613-VOC-4		GLX-TPW-614-VOC-1		GLX-TPW-614-VOC-4	
SAMPLING DATE							10/20/2019		10/20/2019		10/20/2019		10/20/2019		10/20/2019		10/20/2019	
LAB SAMPLE ID							L1949294-51		L1949294-52		L1949294-53		L1949294-54		L1949294-55		L1949294-56	
SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)																		
	CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
MCP Volatile Organics by EPA 5035					NS													
2,2-Dichloropropane	594-20-7				NS	mg/kg	0.0017	U	0.0015	U	0.0014	U	0.002	U	0.0017	U	0.0014	U
1,2-Dibromoethane	106-93-4			0.1	NS	mg/kg	0.00084	U	0.00076	U	0.00068	U	0.00098	U	0.00085	U	0.0007	U
1,3-Dichloropropane	142-28-9			500	0.1	mg/kg	0.0017	U	0.0015	U	0.0014	U	0.002	U	0.0017	U	0.0014	U
1,1,1,2-Tetrachloroethane	630-20-6			0.1	NS	mg/kg	0.00042	U	0.00038	U	0.00034	U	0.00049	U	0.00043	U	0.00035	U
Bromobenzene	108-86-1			100	NS	mg/kg	0.0017	U	0.0015	U	0.0014	U	0.002	U	0.0017	U	0.0014	U
n-Butylbenzene	104-51-8				NS	mg/kg	0.00084	U	0.00076	U	0.00068	U	0.00098	U	0.00085	U	0.0007	U
sec-Butylbenzene	135-98-8				NS	mg/kg	0.00084	U	0.00076	U	0.00068	U	0.00098	U	0.00085	U	0.0007	U
tert-Butylbenzene	98-06-6			100	NS	mg/kg	0.0017	U	0.0015	U	0.0014	U	0.002	U	0.0017	U	0.0014	U
o-Chlorotoluene	95-49-8			100	NS	mg/kg	0.0017	U	0.0015	U	0.0014	U	0.002	U	0.0017	U	0.0014	U
p-Chlorotoluene	106-43-4				NS	mg/kg	0.0017	U	0.0015	U	0.0014	U	0.002	U	0.0017	U	0.0014	U
1,2-Dibromo-3-chloropropane	96-12-8			10	30	mg/kg	0.0025	U	0.0023	U	0.002	U	0.0029	U	0.0026	U	0.0021	U
Hexachlorobutadiene	87-68-3			30	NS	mg/kg	0.0034	U	0.003	U	0.0027	U	0.0039	U	0.0034	U	0.0028	U
Isopropylbenzene	98-82-8			1000		mg/kg	0.00084	U	0.00076	U	0.00068	U	0.00098	U	0.00085	U	0.0007	U
p-Isopropyltoluene	99-87-6			100	NS	mg/kg	0.00084	U	0.00076	U	0.00068	U	0.00098	U	0.00085	U	0.0007	U
Naphthalene	91-20-3			4	4	mg/kg	0.0034	U	0.003	U	0.0027	U	0.0039	U	0.0034	U	0.0028	U
n-Propylbenzene	103-65-1			100	NS	mg/kg	0.00084	U	0.00076	U	0.00068	U	0.00098	U	0.00085	U	0.0007	U
1,2,3-Trichlorobenzene	87-61-6				NS	mg/kg	0.0017	U	0.0015	U	0.0014	U	0.002	U	0.0017	U	0.0014	U
1,2,4-Trichlorobenzene	120-82-1			2	2	mg/kg	0.0017	U	0.0015	U	0.0014	U	0.002	U	0.0017	U	0.0014	U
1,3,5-Trimethylbenzene	108-67-8			10	NS	mg/kg	0.0017	U	0.0015	U	0.0014	U	0.002	U	0.0017	U	0.0014	U
1,2,4-Trimethylbenzene	95-63-6			1000	NS	mg/kg	0.0017	U	0.0015	U	0.0014	U	0.002	U	0.0017	U	0.0014	U
Diethyl ether	60-29-7			100	NS	mg/kg	0.0017	U	0.0015	U	0.0014	U	0.002	U	0.0017	U	0.0014	U
Diisopropyl Ether	108-20-3			100	NS	mg/kg	0.0017	U	0.0015	U	0.0014	U	0.002	U	0.0017	U	0.0014	U
Ethyl-Tert-Butyl-Ether	637-92-3				NS	mg/kg	0.0017	U	0.0015	U	0.0014	U	0.002	U	0.0017	U	0.0014	U
Tertiary-Amyl Methyl Ether	994-05-8				NS	mg/kg	0.0017	U	0.0015	U	0.0014	U	0.002	U	0.0017	U	0.0014	U
1,4-Dioxane	123-91-1			0.2	0.2	mg/kg	0.067	U	0.06	U	0.054	U	0.078	U	0.068	U	0.056	U

Yellow shading indicates detected result is equal to or above one or more of the listed criteria.
Gray shading indicates nondetect detection limit is above one or more of the listed criteria.
Bold typeface indicates detection above metiond detection limit.

MA-LLAND: Lined Landfill Limits current as of August, 1997
MA-ULAND: UnLined Landfill Limits current as of August, 1997
RCS-1-14: MCP 2014 RCS-1 Reportable Concentrations Criteria effective April 25, 2014.
MCP 2014 S-1 Cleanup Criteria effective April 25, 2014; the lowest S-1/GW-X standard is shown.
**EPA-TCLP: EPA Toxicity Characteristic (TCLP) Regulatory Levels Criteria per 40CFR Part 261 as of September 10, 2015.

U - Not detected at the reported detection limit for the sample.
ND - Not detected.
E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
[1] - The laboratory reported two sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results and lowest detection limits have been tabulated. Refer to laboratory report for further detail.
[2] - The laboratory reported three sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results from the low-level analysis and detection limits from the high-level analysis have been tabulated due to significant internal standard issues with the low-level analysis. Refer to laboratory report for further detail.

Summary of Phase 2 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

LOCATION							DUPB		GLX-TPW-606 (1)		GLX-TPW-606 (4)		GLX-TPW-608 (1)		GLX-TPW-608 (4)		GLX-TPW-609 (1)[1]	
SAMPLING DATE							10/20/2019		11/2/2019		11/2/2019		11/2/2019		11/2/2019		11/2/2019	
LAB SAMPLE ID							L1949294-57		L1952035-02		L1952035-04		L1952035-06		L1952035-08		L1952035-10	
SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)																		
	CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
General Chemistry																		
Solids, Total	NONE					%	92.7		84.8		90.1		88		86.1		92.6	
MCP Volatile Organics by EPA 5035																		
Methylene chloride	75-09-2			0.1	NS	mg/kg	0.0039	U	0.004	U	0.0024	U	0.0035	U	0.0047	U	0.0034	U
1,1-Dichloroethane	75-34-3			0.4	0.4	mg/kg	0.00078	U	0.0008	U	0.00048	U	0.00071	U	0.00094	U	0.00069	U
Chloroform	67-66-3			0.2	0.2	mg/kg	0.0012	U	0.0012	U	0.00072	U	0.0011	U	0.0014	U	0.001	U
Carbon tetrachloride	56-23-5			5	5	mg/kg	0.00078	U	0.0008	U	0.00048	U	0.00071	U	0.00094	U	0.00069	U
1,2-Dichloropropane	78-87-5			0.1	0.1	mg/kg	0.00078	U	0.0008	U	0.00048	U	0.00071	U	0.00094	U	0.00069	U
Dibromochloromethane	124-48-1			0.005	0.005	mg/kg	0.00078	U	0.0008	U	0.00048	U	0.00071	U	0.00094	U	0.00069	U
1,1,2-Trichloroethane	79-00-5			0.1	0.1	mg/kg	0.00078	U	0.0008	U	0.00048	U	0.00071	U	0.00094	U	0.00069	U
Tetrachloroethene	127-18-4			1	1	mg/kg	0.00039	U	0.0004	U	0.00024	U	0.00035	U	0.00047	U	0.00034	U
Chlorobenzene	108-90-7			1	1	mg/kg	0.00039	U	0.0004	U	0.00024	U	0.00035	U	0.00047	U	0.00034	U
Trichlorofluoromethane	75-69-4			1000	NS	mg/kg	0.0031	U	0.0032	U	0.0019	U	0.0028	U	0.0037	U	0.0027	U
1,2-Dichloroethane	107-06-2			0.1	0.1	mg/kg	0.00078	U	0.0008	U	0.00048	U	0.00071	U	0.00094	U	0.00069	U
1,1,1-Trichloroethane	71-55-6			30	30	mg/kg	0.00039	U	0.0004	U	0.00024	U	0.00035	U	0.00047	U	0.00034	U
Bromodichloromethane	75-27-4			0.1	0.1	mg/kg	0.00039	U	0.0004	U	0.00024	U	0.00035	U	0.00047	U	0.00034	U
trans-1,3-Dichloropropene	10061-02-6			0.01	NS	mg/kg	0.00078	U	0.0008	U	0.00048	U	0.00071	U	0.00094	U	0.00069	U
cis-1,3-Dichloropropene	10061-01-5			0.01	NS	mg/kg	0.00039	U	0.0004	U	0.00024	U	0.00035	U	0.00047	U	0.00034	U
1,3-Dichloropropene, Total	542-75-6			0.01	0.01	mg/kg	0.00039	U	0.0004	U	0.00024	U	0.00035	U	0.00047	U	0.00034	U
1,1-Dichloropropene	563-58-6				NS	mg/kg	0.00039	U	0.0004	U	0.00024	U	0.00035	U	0.00047	U	0.00034	U
Bromoform	75-25-2			0.1	0.1	mg/kg	0.0031	U	0.0032	U	0.0019	U	0.0028	U	0.0037	U	0.0027	U
1,1,2,2-Tetrachloroethane	79-34-5			0.005	0.005	mg/kg	0.00039	U	0.0004	U	0.00024	U	0.00035	U	0.00047	U	0.00034	U
Benzene	71-43-2			2	2	mg/kg	0.00039	U	0.0004	U	0.00024	U	0.00035	U	0.00047	U	0.00034	U
Toluene	108-88-3			30	30	mg/kg	0.00078	U	0.0008	U	0.00048	U	0.00071	U	0.00094	U	0.00069	U
Ethylbenzene	100-41-4			40	40	mg/kg	0.00078	U	0.0008	U	0.00048	U	0.00071	U	0.00094	U	0.00069	U
Chloromethane	74-87-3			100	NS	mg/kg	0.0031	U	0.0032	U	0.0019	U	0.0028	U	0.0037	U	0.0027	U
Bromomethane	74-83-9			0.5	0.5	mg/kg	0.0016	U	0.0016	U	0.00096	U	0.0014	U	0.0019	U	0.0014	U
Vinyl chloride	75-01-4			0.7	0.7	mg/kg	0.00078	U	0.0008	U	0.00048	U	0.00071	U	0.00094	U	0.00069	U
Chloroethane	75-00-3			100	NS	mg/kg	0.0016	U	0.0016	U	0.00096	U	0.0014	U	0.0019	U	0.0014	U
1,1-Dichloroethene	75-35-4			3	3	mg/kg	0.00078	U	0.0008	U	0.00048	U	0.00071	U	0.00094	U	0.00069	U
trans-1,2-Dichloroethene	156-60-5			1	1	mg/kg	0.0012	U	0.0012	U	0.00072	U	0.0011	U	0.0014	U	0.001	U
Trichloroethene	79-01-6			0.3	0.3	mg/kg	0.00039	U	0.0004	U	0.00024	U	0.00035	U	0.00047	U	0.00034	U
1,2-Dichlorobenzene	95-50-1			9	9	mg/kg	0.0016	U	0.0016	U	0.00096	U	0.0014	U	0.0019	U	0.0014	U
1,3-Dichlorobenzene	541-73-1			3	3	mg/kg	0.0016	U	0.0016	U	0.00096	U	0.0014	U	0.0019	U	0.0014	U
1,4-Dichlorobenzene	106-46-7			0.7	0.7	mg/kg	0.0016	U	0.0016	U	0.00096	U	0.0014	U	0.0019	U	0.0014	U
Methyl tert butyl ether	1634-04-4			0.1	0.1	mg/kg	0.0016	U	0.0016	U	0.00096	U	0.0014	U	0.0019	U	0.0014	U
p/m-Xylene	179601-23-1			100	100	mg/kg	0.0016	U	0.0016	U	0.00096	U	0.0014	U	0.0019	U	0.0014	U
o-Xylene	95-47-6			100	100	mg/kg	0.00078	U	0.0008	U	0.00048	U	0.00071	U	0.00094	U	0.00069	U
Xylenes, Total	1330-20-7			100	100	mg/kg	0.00078	U	0.0008	U	0.00048	U	0.00071	U	0.00094	U	0.00069	U
cis-1,2-Dichloroethene	156-59-2			0.1	0.1	mg/kg	0.00078	U	0.0008	U	0.00048	U	0.00071	U	0.00094	U	0.00069	U
1,2-Dichloroethene, Total	540-59-0				NS	mg/kg	0.00078	U	0.0008	U	0.00048	U	0.00071	U	0.00094	U	0.00069	U
Dibromomethane	74-95-3			500	NS	mg/kg	0.0016	U	0.0016	U	0.00096	U	0.0014	U	0.0019	U	0.0014	U
1,2,3-Trichloropropane	96-18-4			100	NS	mg/kg	0.0016	U	0.0016	U	0.00096	U	0.0014	U	0.0019	U	0.0014	U
Styrene	100-42-5			3	3	mg/kg	0.00078	U	0.0008	U	0.00048	U	0.00071	U	0.00094	U	0.00069	U
Dichlorodifluoromethane	75-71-8			1000	NS	mg/kg	0.0078	U	0.008	U	0.0048	U	0.0071	U	0.0094	U	0.0069	U
Acetone	67-64-1			6	6	mg/kg	**0.052**		**0.043**		**0.016**		**0.02**		**0.053**		**0.07**	
Carbon disulfide	75-15-0			100	NS	mg/kg	0.0078	U	0.008	U	0.0048	U	0.0071	U	0.0094	U	0.0069	U
Methyl ethyl ketone	78-93-3			4	4	mg/kg	0.0078	U	0.008	U	0.0048	U	0.0071	U	0.0094	U	0.0069	U
Methyl isobutyl ketone	108-10-1			0.4	0.4	mg/kg	0.0078	U	0.008	U	0.0048	U	0.0071	U	0.0094	U	0.0069	U
2-Hexanone	591-78-6			100	NS	mg/kg	0.0078	U	0.008	U	0.0048	U	0.0071	U	0.0094	U	0.0069	U
Bromochloromethane	74-97-5				NS	mg/kg	0.0016	U	0.0016	U	0.00096	U	0.0014	U	0.0019	U	0.0014	U
Tetrahydrofuran	109-99-9			500	NS	mg/kg	0.0031	U	0.0032	U	0.0019	U	0.0028	U	0.0037	U	0.0027	U

Summary of Phase 2 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

LOCATION							DUPB		GLX-TPW-606 (1)		GLX-TPW-606 (4)		GLX-TPW-608 (1)		GLX-TPW-608 (4)		GLX-TPW-609 (1)[1]	
SAMPLING DATE							10/20/2019		11/2/2019		11/2/2019		11/2/2019		11/2/2019		11/2/2019	
LAB SAMPLE ID							L1949294-57		L1952035-02		L1952035-04		L1952035-06		L1952035-08		L1952035-10	
SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)																		
	CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
MCP Volatile Organics by EPA 5035					NS													
2,2-Dichloropropane	594-20-7				NS	mg/kg	0.0016	U	0.0016	U	0.00096	U	0.0014	U	0.0019	U	0.0014	U
1,2-Dibromoethane	106-93-4			0.1	NS	mg/kg	0.00078	U	0.0008	U	0.00048	U	0.00071	U	0.00094	U	0.00069	U
1,3-Dichloropropane	142-28-9			500	0.1	mg/kg	0.0016	U	0.0016	U	0.00096	U	0.0014	U	0.0019	U	0.0014	U
1,1,1,2-Tetrachloroethane	630-20-6			0.1	NS	mg/kg	0.00039	U	0.0004	U	0.00024	U	0.00035	U	0.00047	U	0.00034	U
Bromobenzene	108-86-1			100	NS	mg/kg	0.0016	U	0.0016	U	0.00096	U	0.0014	U	0.0019	U	0.0014	U
n-Butylbenzene	104-51-8				NS	mg/kg	0.00078	U	0.0008	U	0.00048	U	0.00071	U	0.00094	U	0.00069	U
sec-Butylbenzene	135-98-8				NS	mg/kg	0.00078	U	0.0008	U	0.00048	U	0.00071	U	0.00094	U	0.00069	U
tert-Butylbenzene	98-06-6			100	NS	mg/kg	0.0016	U	0.0016	U	0.00096	U	0.0014	U	0.0019	U	0.0014	U
o-Chlorotoluene	95-49-8			100	NS	mg/kg	0.0016	U	0.0016	U	0.00096	U	0.0014	U	0.0019	U	0.0014	U
p-Chlorotoluene	106-43-4				NS	mg/kg	0.0016	U	0.0016	U	0.00096	U	0.0014	U	0.0019	U	0.0014	U
1,2-Dibromo-3-chloropropane	96-12-8			10	30	mg/kg	0.0023	U	0.0024	U	0.0014	U	0.0021	U	0.0028	U	0.0021	U
Hexachlorobutadiene	87-68-3			30	NS	mg/kg	0.0031	U	0.0032	U	0.0019	U	0.0028	U	0.0037	U	0.0027	U
Isopropylbenzene	98-82-8			1000		mg/kg	0.00078	U	0.0008	U	0.00048	U	0.00071	U	0.00094	U	0.00069	U
p-Isopropyltoluene	99-87-6			100	NS	mg/kg	0.00078	U	0.0008	U	0.00048	U	0.00071	U	0.00094	U	0.00069	U
Naphthalene	91-20-3			4	4	mg/kg	0.0031	U	0.0032	U	0.0019	U	0.0028	U	0.0037	U	0.0027	U
n-Propylbenzene	103-65-1			100	NS	mg/kg	0.00078	U	0.0008	U	0.00048	U	0.00071	U	0.00094	U	0.00069	U
1,2,3-Trichlorobenzene	87-61-6				NS	mg/kg	0.0016	U	0.0016	U	0.00096	U	0.0014	U	0.0019	U	0.0014	U
1,2,4-Trichlorobenzene	120-82-1			2	2	mg/kg	0.0016	U	0.0016	U	0.00096	U	0.0014	U	0.0019	U	0.0014	U
1,3,5-Trimethylbenzene	108-67-8			10	NS	mg/kg	0.0016	U	0.0016	U	0.00096	U	0.0014	U	0.0019	U	0.0014	U
1,2,4-Trimethylbenzene	95-63-6			1000	NS	mg/kg	0.0016	U	0.0016	U	0.00096	U	0.0014	U	0.0019	U	0.0014	U
Diethyl ether	60-29-7			100	NS	mg/kg	0.0016	U	0.0016	U	0.00096	U	0.0014	U	0.0019	U	0.0014	U
Diisopropyl Ether	108-20-3			100	NS	mg/kg	0.0016	U	0.0016	U	0.00096	U	0.0014	U	0.0019	U	0.0014	U
Ethyl-Tert-Butyl-Ether	637-92-3				NS	mg/kg	0.0016	U	0.0016	U	0.00096	U	0.0014	U	0.0019	U	0.0014	U
Tertiary-Amyl Methyl Ether	994-05-8				NS	mg/kg	0.0016	U	0.0016	U	0.00096	U	0.0014	U	0.0019	U	0.0014	U
1,4-Dioxane	123-91-1			0.2	0.2	mg/kg	0.062	U	0.064	U	0.038	U	0.057	U	0.075	U	0.055	U

Yellow shading indicates detected result is equal to or above one or more of the listed criteria.
Gray shading indicates nondetect detection limit is above one or more of the listed criteria.
Bold typeface indicates detection above metiond detection limit.

MA-LLAND: Lined Landfill Limits current as of August, 1997
MA-ULAND: UnLined Landfill Limits current as of August, 1997
RCS-1-14: MCP 2014 RCS-1 Reportable Concentrations Criteria effective April 25, 2014.
MCP 2014 S-1 Cleanup Criteria effective April 25, 2014; the lowest S-1/GW-X standard is shown.
**EPA-TCLP: EPA Toxicity Characteristic (TCLP) Regulatory Levels Criteria per 40CFR Part 261 as of September 10, 2015.

U - Not detected at the reported detection limit for the sample.
ND - Not detected.
E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
[1] - The laboratory reported two sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results and lowest detection limits have been tabulated. Refer to laboratory report for further detail.
[2] - The laboratory reported three sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results from the low-level analysis and detection limits from the high-level analysis have been tabulated due to significant internal standard issues with the low-level analysis. Refer to laboratory report for further detail.

Summary of Phase 2 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

LOCATION							GLX-TPW-609 (4)		GLX-TPW-610 (1)[1]		GLX-TPW-610 (3)		GLX-TPW-610 (7)		GLC-C14(A)-DC-VOC (10)		GLC-C14(B)-DC-VOC (12)[1]	
SAMPLING DATE							11/2/2019		11/2/2019		11/2/2019		11/2/2019		11/2/2019		11/2/2019	
LAB SAMPLE ID							L1952035-12		L1952035-14		L1952035-16		L1952035-18		L1952035-20		L1952035-23	
SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)																		
	CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
General Chemistry																		
Solids, Total	NONE					%	92.7		91.4		96		94.4		80.7		91.2	
MCP Volatile Organics by EPA 5035																		
Methylene chloride	75-09-2			0.1	NS	mg/kg	0.0032	U	0.0038	U	0.0024	U	0.003	U	0.0037	U	0.0026	U
1,1-Dichloroethane	75-34-3			0.4	0.4	mg/kg	0.00064	U	0.00076	U	0.00048	U	0.00061	U	0.00074	U	0.00052	U
Chloroform	67-66-3			0.2	0.2	mg/kg	0.00096	U	0.0011	U	0.00071	U	0.00091	U	0.0011	U	0.00078	U
Carbon tetrachloride	56-23-5			5	5	mg/kg	0.00064	U	0.00076	U	0.00048	U	0.00061	U	0.00074	U	0.00052	U
1,2-Dichloropropane	78-87-5			0.1	0.1	mg/kg	0.00064	U	0.00076	U	0.00048	U	0.00061	U	0.00074	U	0.00052	U
Dibromochloromethane	124-48-1			0.005	0.005	mg/kg	0.00064	U	0.00076	U	0.00048	U	0.00061	U	0.00074	U	0.00052	U
1,1,2-Trichloroethane	79-00-5			0.1	0.1	mg/kg	0.00064	U	0.00076	U	0.00048	U	0.00061	U	0.00074	U	0.00052	U
Tetrachloroethene	127-18-4			1	1	mg/kg	0.00032	U	0.00038	U	0.00024	U	0.0003	U	0.00037	U	0.00026	U
Chlorobenzene	108-90-7			1	1	mg/kg	0.00032	U	0.00038	U	0.00024	U	0.0003	U	0.00037	U	0.00026	U
Trichlorofluoromethane	75-69-4			1000	NS	mg/kg	0.0026	U	0.003	U	0.0019	U	0.0024	U	0.003	U	0.0021	U
1,2-Dichloroethane	107-06-2			0.1	0.1	mg/kg	0.00064	U	0.00076	U	0.00048	U	0.00061	U	0.00074	U	0.00052	U
1,1,1-Trichloroethane	71-55-6			30	30	mg/kg	0.00032	U	0.00038	U	0.00024	U	0.0003	U	0.00037	U	0.00026	U
Bromodichloromethane	75-27-4			0.1	0.1	mg/kg	0.00032	U	0.00038	U	0.00024	U	0.0003	U	0.00037	U	0.00026	U
trans-1,3-Dichloropropene	10061-02-6			0.01	NS	mg/kg	0.00064	U	0.00076	U	0.00048	U	0.00061	U	0.00074	U	0.00052	U
cis-1,3-Dichloropropene	10061-01-5			0.01	NS	mg/kg	0.00032	U	0.00038	U	0.00024	U	0.0003	U	0.00037	U	0.00026	U
1,3-Dichloropropene, Total	542-75-6			0.01	0.01	mg/kg	0.00032	U	0.00038	U	0.00024	U	0.0003	U	0.00037	U	0.00026	U
1,1-Dichloropropene	563-58-6				NS	mg/kg	0.00032	U	0.00038	U	0.00024	U	0.0003	U	0.00037	U	0.00026	U
Bromoform	75-25-2			0.1	0.1	mg/kg	0.0026	U	0.003	U	0.0019	U	0.0024	U	0.003	U	0.0021	U
1,1,2,2-Tetrachloroethane	79-34-5			0.005	0.005	mg/kg	0.00032	U	0.00038	U	0.00024	U	0.0003	U	0.00037	U	0.00026	U
Benzene	71-43-2			2	2	mg/kg	0.00032	U	0.00038	U	0.00024	U	0.0003	U	0.00037	U	0.00026	U
Toluene	108-88-3			30	30	mg/kg	0.00064	U	0.00076	U	0.00048	U	0.00061	U	0.00074	U	0.00052	U
Ethylbenzene	100-41-4			40	40	mg/kg	0.00064	U	0.00076	U	0.00048	U	0.00061	U	0.00074	U	0.00052	U
Chloromethane	74-87-3			100	NS	mg/kg	0.0026	U	0.003	U	0.0019	U	0.0024	U	0.003	U	0.0021	U
Bromomethane	74-83-9			0.5	0.5	mg/kg	0.0013	U	0.0015	U	0.00095	U	0.0012	U	0.0015	U	0.001	U
Vinyl chloride	75-01-4			0.7	0.7	mg/kg	0.00064	U	0.00076	U	0.00048	U	0.00061	U	0.00074	U	0.00052	U
Chloroethane	75-00-3			100	NS	mg/kg	0.0013	U	0.0015	U	0.00095	U	0.0012	U	0.0015	U	0.001	U
1,1-Dichloroethene	75-35-4			3	3	mg/kg	0.00064	U	0.00076	U	0.00048	U	0.00061	U	0.00074	U	0.00052	U
trans-1,2-Dichloroethene	156-60-5			1	1	mg/kg	0.00096	U	0.0011	U	0.00071	U	0.00091	U	0.0011	U	0.00078	U
Trichloroethene	79-01-6			0.3	0.3	mg/kg	0.00032	U	0.00038	U	0.00024	U	0.0003	U	0.00037	U	0.00026	U
1,2-Dichlorobenzene	95-50-1			9	9	mg/kg	0.0013	U	0.0015	U	0.00095	U	0.0012	U	0.0015	U	0.001	U
1,3-Dichlorobenzene	541-73-1			3	3	mg/kg	0.0013	U	0.0015	U	0.00095	U	0.0012	U	0.0015	U	0.001	U
1,4-Dichlorobenzene	106-46-7			0.7	0.7	mg/kg	0.0013	U	0.0015	U	0.00095	U	0.0012	U	0.0015	U	0.001	U
Methyl tert butyl ether	1634-04-4			0.1	0.1	mg/kg	0.0013	U	0.0015	U	0.00095	U	0.0012	U	0.0015	U	0.001	U
p/m-Xylene	179601-23-1			100	100	mg/kg	0.0013	U	0.0015	U	0.00095	U	0.0012	U	0.0015	U	0.001	U
o-Xylene	95-47-6			100	100	mg/kg	0.00064	U	0.00076	U	0.00048	U	0.00061	U	0.00074	U	0.00052	U
Xylenes, Total	1330-20-7			100	100	mg/kg	0.00064	U	0.00076	U	0.00048	U	0.00061	U	0.00074	U	0.00052	U
cis-1,2-Dichloroethene	156-59-2			0.1	0.1	mg/kg	0.00064	U	0.00076	U	0.00048	U	0.00061	U	0.00074	U	0.00052	U
1,2-Dichloroethene, Total	540-59-0				NS	mg/kg	0.00064	U	0.00076	U	0.00048	U	0.00061	U	0.00074	U	0.00052	U
Dibromomethane	74-95-3			500	NS	mg/kg	0.0013	U	0.0015	U	0.00095	U	0.0012	U	0.0015	U	0.001	U
1,2,3-Trichloropropane	96-18-4			100	NS	mg/kg	0.0013	U	0.0015	U	0.00095	U	0.0012	U	0.0015	U	0.001	U
Styrene	100-42-5			3	3	mg/kg	0.00064	U	0.00076	U	0.00048	U	0.00061	U	0.00074	U	0.00052	U
Dichlorodifluoromethane	75-71-8			1000	NS	mg/kg	0.0064	U	0.0076	U	0.0048	U	0.0061	U	0.0074	U	0.0052	U
Acetone	67-64-1			6	6	mg/kg	**0.092**		**0.18**		**0.018**		**0.035**		0.018	U	0.013	U
Carbon disulfide	75-15-0			100	NS	mg/kg	0.0064	U	0.0076	U	0.0048	U	0.0061	U	0.0074	U	0.0052	U
Methyl ethyl ketone	78-93-3			4	4	mg/kg	0.0064	U	**0.018**		0.0048	U	0.0061	U	0.0074	U	0.0052	U
Methyl isobutyl ketone	108-10-1			0.4	0.4	mg/kg	0.0064	U	0.0076	U	0.0048	U	0.0061	U	0.0074	U	0.0052	U
2-Hexanone	591-78-6			100	NS	mg/kg	0.0064	U	0.0076	U	0.0048	U	0.0061	U	0.0074	U	0.0052	U
Bromochloromethane	74-97-5				NS	mg/kg	0.0013	U	0.0015	U	0.00095	U	0.0012	U	0.0015	U	0.001	U
Tetrahydrofuran	109-99-9			500	NS	mg/kg	0.0026	U	0.003	U	0.0019	U	0.0024	U	0.003	U	0.0021	U

Summary of Phase 2 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

LOCATION								GLX-TPW-609 (4)		GLX-TPW-610 (1)[1]		GLX-TPW-610 (3)		GLX-TPW-610 (7)		GLC-C14(A)-DC-VOC (10)		GLC-C14(B)-DC-VOC (12)[1]	
SAMPLING DATE								11/2/2019		11/2/2019		11/2/2019		11/2/2019		11/2/2019		11/2/2019	
LAB SAMPLE ID								L1952035-12		L1952035-14		L1952035-16		L1952035-18		L1952035-20		L1952035-23	
SAMPLE TYPE								SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)																			
	CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
MCP Volatile Organics by EPA 5035					NS													
2,2-Dichloropropane	594-20-7				NS	mg/kg	0.0013	U	0.0015	U	0.00095	U	0.0012	U	0.0015	U	0.001	U
1,2-Dibromoethane	106-93-4			0.1	NS	mg/kg	0.00064	U	0.00076	U	0.00048	U	0.00061	U	0.00074	U	0.00052	U
1,3-Dichloropropane	142-28-9			500	0.1	mg/kg	0.0013	U	0.0015	U	0.00095	U	0.0012	U	0.0015	U	0.001	U
1,1,1,2-Tetrachloroethane	630-20-6			0.1	NS	mg/kg	0.00032	U	0.00038	U	0.00024	U	0.0003	U	0.00037	U	0.00026	U
Bromobenzene	108-86-1			100	NS	mg/kg	0.0013	U	0.0015	U	0.00095	U	0.0012	U	0.0015	U	0.001	U
n-Butylbenzene	104-51-8				NS	mg/kg	0.00064	U	0.00076	U	0.00048	U	0.00061	U	0.00074	U	0.00052	U
sec-Butylbenzene	135-98-8				NS	mg/kg	0.00064	U	0.00076	U	0.00048	U	0.00061	U	0.00074	U	0.00052	U
tert-Butylbenzene	98-06-6			100	NS	mg/kg	0.0013	U	0.0015	U	0.00095	U	0.0012	U	0.0015	U	0.001	U
o-Chlorotoluene	95-49-8			100	NS	mg/kg	0.0013	U	0.0015	U	0.00095	U	0.0012	U	0.0015	U	0.001	U
p-Chlorotoluene	106-43-4				NS	mg/kg	0.0013	U	0.0015	U	0.00095	U	0.0012	U	0.0015	U	0.001	U
1,2-Dibromo-3-chloropropane	96-12-8			10	30	mg/kg	0.0019	U	0.0023	U	0.0014	U	0.0018	U	0.0022	U	0.0016	U
Hexachlorobutadiene	87-68-3			30	NS	mg/kg	0.0026	U	0.003	U	0.0019	U	0.0024	U	0.003	U	0.0021	U
Isopropylbenzene	98-82-8			1000		mg/kg	0.00064	U	0.00076	U	0.00048	U	0.00061	U	0.00074	U	0.00052	U
p-Isopropyltoluene	99-87-6			100	NS	mg/kg	0.00064	U	0.00076	U	0.00048	U	0.00061	U	0.00074	U	0.00052	U
Naphthalene	91-20-3			4	4	mg/kg	0.0026	U	0.003	U	0.0019	U	0.0024	U	0.003	U	0.0021	U
n-Propylbenzene	103-65-1			100	NS	mg/kg	0.00064	U	0.00076	U	0.00048	U	0.00061	U	0.00074	U	0.00052	U
1,2,3-Trichlorobenzene	87-61-6				NS	mg/kg	0.0013	U	0.0015	U	0.00095	U	0.0012	U	0.0015	U	0.001	U
1,2,4-Trichlorobenzene	120-82-1			2	2	mg/kg	0.0013	U	0.0015	U	0.00095	U	0.0012	U	0.0015	U	0.001	U
1,3,5-Trimethylbenzene	108-67-8			10	NS	mg/kg	0.0013	U	0.0015	U	0.00095	U	0.0012	U	0.0015	U	0.001	U
1,2,4-Trimethylbenzene	95-63-6			1000	NS	mg/kg	0.0013	U	0.0015	U	0.00095	U	0.0012	U	0.0015	U	0.001	U
Diethyl ether	60-29-7			100	NS	mg/kg	0.0013	U	0.0015	U	0.00095	U	0.0012	U	0.0015	U	0.001	U
Diisopropyl Ether	108-20-3			100	NS	mg/kg	0.0013	U	0.0015	U	0.00095	U	0.0012	U	0.0015	U	0.001	U
Ethyl-Tert-Butyl-Ether	637-92-3				NS	mg/kg	0.0013	U	0.0015	U	0.00095	U	0.0012	U	0.0015	U	0.001	U
Tertiary-Amyl Methyl Ether	994-05-8				NS	mg/kg	0.0013	U	0.0015	U	0.00095	U	0.0012	U	0.0015	U	0.001	U
1,4-Dioxane	123-91-1			0.2	0.2	mg/kg	0.051	U	0.061	U	0.038	U	0.049	U	0.059	U	0.042	U

Yellow shading indicates detected result is equal to or above one or more of the listed criteria.
Gray shading indicates nondetect detection limit is above one or more of the listed criteria.
Bold typeface indicates detection above metiond detection limit.

MA-LLAND: Lined Landfill Limits current as of August, 1997
MA-ULAND: UnLined Landfill Limits current as of August, 1997
RCS-1-14: MCP 2014 RCS-1 Reportable Concentrations Criteria effective April 25, 2014.
MCP 2014 S-1 Cleanup Criteria effective April 25, 2014; the lowest S-1/GW-X standard is shown.
**EPA-TCLP: EPA Toxicity Characteristic (TCLP) Regulatory Levels Criteria per 40CFR Part 261 as of September 10, 2015.

U - Not detected at the reported detection limit for the sample.
ND - Not detected.
E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
[1] - The laboratory reported two sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results and lowest detection limits have been tabulated. Refer to laboratory report for further detail.
[2] - The laboratory reported three sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results from the low-level analysis and detection limits from the high-level analysis have been tabulated due to significant internal standard issues with the low-level analysis. Refer to laboratory report for further detail.

Summary of Phase 2 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

	LOCATION							GLC-C13(A)-DC-VOC (9)[1]		GLC-C13(B)-DC-VOC (9)[2]		GLX-TPW-403-VOC (3')		GLX-TPW-401-VOC (3')		GLX-TPW-402-VOC (4')	
	SAMPLING DATE							11/2/2019		11/2/2019		11/6/2019		11/6/2019		11/6/2019	
	LAB SAMPLE ID							L1952035-25		L1952035-27		L1952792-04		L1952792-05		L1952792-06	
	SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL		SOIL	
	SAMPLE DEPTH (ft.)																
		CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
General Chemistry																	
	Solids, Total	NONE					%	82.9		86.6		88.1		90.6		84.9	
MCP Volatile Organics by EPA 5035																	
	Methylene chloride	75-09-2			0.1	NS	mg/kg	0.0051	U	0.3	U	0.0089	U	0.33	U	0.3	U
	1,1-Dichloroethane	75-34-3			0.4	0.4	mg/kg	0.001	U	0.06	U	0.0018	U	0.065	U	0.06	U
	Chloroform	67-66-3			0.2	0.2	mg/kg	0.0015	U	0.091	U	0.0027	U	0.098	U	0.09	U
	Carbon tetrachloride	56-23-5			5	5	mg/kg	0.001	U	0.06	U	0.0018	U	0.065	U	0.06	U
	1,2-Dichloropropane	78-87-5			0.1	0.1	mg/kg	0.001	U	0.06	U	0.0018	U	0.065	U	0.06	U
	Dibromochloromethane	124-48-1			0.005	0.005	mg/kg	0.001	U	0.06	U	0.0018	U	0.065	U	0.06	U
	1,1,2-Trichloroethane	79-00-5			0.1	0.1	mg/kg	0.001	U	0.06	U	0.0018	U	0.065	U	0.06	U
	Tetrachloroethene	127-18-4			1	1	mg/kg	0.00051	U	0.03	U	0.00089	U	**0.041**		**2**	
	Chlorobenzene	108-90-7			1	1	mg/kg	0.00051	U	0.03	U	0.00089	U	0.033	U	0.03	U
	Trichlorofluoromethane	75-69-4			1000	NS	mg/kg	0.0041	U	0.24	U	0.0071	U	0.26	U	0.24	U
	1,2-Dichloroethane	107-06-2			0.1	0.1	mg/kg	0.001	U	0.06	U	0.0018	U	0.065	U	0.06	U
	1,1,1-Trichloroethane	71-55-6			30	30	mg/kg	0.00051	U	0.03	U	0.00089	U	0.033	U	0.03	U
	Bromodichloromethane	75-27-4			0.1	0.1	mg/kg	0.00051	U	0.03	U	0.00089	U	0.033	U	0.03	U
	trans-1,3-Dichloropropene	10061-02-6			0.01	NS	mg/kg	0.001	U	0.06	U	0.0018	U	0.065	U	0.06	U
	cis-1,3-Dichloropropene	10061-01-5			0.01	NS	mg/kg	0.00051	U	0.03	U	0.00089	U	0.033	U	0.03	U
	1,3-Dichloropropene, Total	542-75-6			0.01	0.01	mg/kg	0.00051	U	0.03	U	0.00089	U	0.033	U	0.03	U
	1,1-Dichloropropene	563-58-6				NS	mg/kg	0.00051	U	0.03	U	0.00089	U	0.033	U	0.03	U
	Bromoform	75-25-2			0.1	0.1	mg/kg	0.0041	U	0.24	U	0.0071	U	0.26	U	0.24	U
	1,1,2,2-Tetrachloroethane	79-34-5			0.005	0.005	mg/kg	0.00051	U	0.03	U	0.00089	U	0.033	U	0.03	U
	Benzene	71-43-2			2	2	mg/kg	0.00051	U	0.03	U	0.00089	U	0.033	U	0.03	U
	Toluene	108-88-3			30	30	mg/kg	0.001	U	0.06	U	0.0018	U	0.065	U	0.06	U
	Ethylbenzene	100-41-4			40	40	mg/kg	0.001	U	0.06	U	0.0018	U	0.065	U	0.06	U
	Chloromethane	74-87-3			100	NS	mg/kg	0.0041	U	0.24	U	0.0071	U	0.26	U	0.24	U
	Bromomethane	74-83-9			0.5	0.5	mg/kg	0.002	U	0.12	U	0.0036	U	0.13	U	0.12	U
	Vinyl chloride	75-01-4			0.7	0.7	mg/kg	0.001	U	0.06	U	**0.0023**		0.065	U	0.06	U
	Chloroethane	75-00-3			100	NS	mg/kg	0.002	U	0.12	U	0.0036	U	0.13	U	0.12	U
	1,1-Dichloroethene	75-35-4			3	3	mg/kg	0.001	U	0.06	U	0.0018	U	0.065	U	0.06	U
	trans-1,2-Dichloroethene	156-60-5			1	1	mg/kg	0.0015	U	0.091	U	0.0027	U	0.098	U	0.09	U
	Trichloroethene	79-01-6			0.3	0.3	mg/kg	0.00051	U	0.03	U	0.00089	U	0.033	U	**0.032**	
	1,2-Dichlorobenzene	95-50-1			9	9	mg/kg	0.002	U	0.12	U	0.0036	U	0.13	U	0.12	U
	1,3-Dichlorobenzene	541-73-1			3	3	mg/kg	0.002	U	0.12	U	0.0036	U	0.13	U	0.12	U
	1,4-Dichlorobenzene	106-46-7			0.7	0.7	mg/kg	0.002	U	0.12	U	0.0036	U	0.13	U	0.12	U
	Methyl tert butyl ether	1634-04-4			0.1	0.1	mg/kg	0.002	U	0.12	U	0.0036	U	0.13	U	0.12	U
	p/m-Xylene	179601-23-1			100	100	mg/kg	0.002	U	0.12	U	0.0036	U	0.13	U	0.12	U
	o-Xylene	95-47-6			100	100	mg/kg	0.001	U	0.06	U	0.0018	U	0.065	U	0.06	U
	Xylenes, Total	1330-20-7			100	100	mg/kg	0.001	U	0.06	U	0.0018	U	0.065	U	0.06	U
	cis-1,2-Dichloroethene	156-59-2			0.1	0.1	mg/kg	0.001	U	0.06	U	**0.0037**		0.065	U	0.06	U
	1,2-Dichloroethene, Total	540-59-0				NS	mg/kg	0.001	U	0.06	U	**0.0037**		0.065	U	0.06	U
	Dibromomethane	74-95-3			500	NS	mg/kg	0.002	U	0.12	U	0.0036	U	0.13	U	0.12	U
	1,2,3-Trichloropropane	96-18-4			100	NS	mg/kg	0.002	U	0.12	U	0.0036	U	0.13	U	0.12	U
	Styrene	100-42-5			3	3	mg/kg	0.001	U	0.06	U	0.0018	U	0.065	U	0.06	U
	Dichlorodifluoromethane	75-71-8			1000	NS	mg/kg	0.01	U	0.6	U	0.018	U	0.65	U	0.6	U
	Acetone	67-64-1			6	6	mg/kg	**0.49**	E	**0.16**		0.044	U	0.65	U	0.6	U
	Carbon disulfide	75-15-0			100	NS	mg/kg	0.01	U	0.6	U	0.018	U	0.65	U	0.6	U
	Methyl ethyl ketone	78-93-3			4	4	mg/kg	0.01	U	0.6	U	0.018	U	0.65	U	0.6	U
	Methyl isobutyl ketone	108-10-1			0.4	0.4	mg/kg	0.01	U	0.6	U	0.018	U	0.65	U	0.6	U
	2-Hexanone	591-78-6			100	NS	mg/kg	0.01	U	0.6	U	0.018	U	0.65	U	0.6	U
	Bromochloromethane	74-97-5				NS	mg/kg	0.002	U	0.12	U	0.0036	U	0.13	U	0.12	U
	Tetrahydrofuran	109-99-9			500	NS	mg/kg	0.0041	U	0.24	U	0.0071	U	0.26	U	0.24	U

Summary of Phase 2 Soil Sample Analytical Results
MBTA Green Line Extension Project
Washington Street
Somerville, Massachusetts

LOCATION							GLC-C13(A)-DC-VOC (9)[1]		GLC-C13(B)-DC-VOC (9)[2]		GLX-TPW-403-VOC (3')		GLX-TPW-401-VOC (3')		GLX-TPW-402-VOC (4')	
SAMPLING DATE							11/2/2019		11/2/2019		11/6/2019		11/6/2019		11/6/2019	
LAB SAMPLE ID							L1952035-25		L1952035-27		L1952792-04		L1952792-05		L1952792-06	
SAMPLE TYPE							SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)																
	CasNum	MA-LLAND	MA-ULAND	RCS-1-14	S-1	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
MCP Volatile Organics by EPA 5035					NS											
2,2-Dichloropropane	594-20-7				NS	mg/kg	0.002	U	0.12	U	0.0036	U	0.13	U	0.12	U
1,2-Dibromoethane	106-93-4			0.1	NS	mg/kg	0.001	U	0.06	U	0.0018	U	0.065	U	0.06	U
1,3-Dichloropropane	142-28-9			500	0.1	mg/kg	0.002	U	0.12	U	0.0036	U	0.13	U	0.12	U
1,1,1,2-Tetrachloroethane	630-20-6			0.1	NS	mg/kg	0.00051	U	0.03	U	0.00089	U	0.033	U	0.03	U
Bromobenzene	108-86-1			100	NS	mg/kg	0.002	U	0.12	U	0.0036	U	0.13	U	0.12	U
n-Butylbenzene	104-51-8				NS	mg/kg	0.001	U	0.06	U	0.0018	U	0.065	U	0.06	U
sec-Butylbenzene	135-98-8				NS	mg/kg	0.001	U	0.06	U	0.0018	U	0.065	U	0.06	U
tert-Butylbenzene	98-06-6			100	NS	mg/kg	0.002	U	0.12	U	0.0036	U	0.13	U	0.12	U
o-Chlorotoluene	95-49-8			100	NS	mg/kg	0.002	U	0.12	U	0.0036	U	0.13	U	0.12	U
p-Chlorotoluene	106-43-4				NS	mg/kg	0.002	U	0.12	U	0.0036	U	0.13	U	0.12	U
1,2-Dibromo-3-chloropropane	96-12-8			10	30	mg/kg	0.0031	U	0.18	U	0.0053	U	0.2	U	0.18	U
Hexachlorobutadiene	87-68-3			30	NS	mg/kg	0.0041	U	0.24	U	0.0071	U	0.26	U	0.24	U
Isopropylbenzene	98-82-8			1000		mg/kg	0.001	U	0.06	U	0.0018	U	0.065	U	0.06	U
p-Isopropyltoluene	99-87-6			100	NS	mg/kg	0.001	U	0.06	U	0.0018	U	0.065	U	0.06	U
Naphthalene	91-20-3			4	4	mg/kg	0.0041	U	0.24	U	0.0071	U	0.26	U	0.24	U
n-Propylbenzene	103-65-1			100	NS	mg/kg	0.001	U	0.06	U	0.0018	U	0.065	U	0.06	U
1,2,3-Trichlorobenzene	87-61-6				NS	mg/kg	0.002	U	0.12	U	0.0036	U	0.13	U	0.12	U
1,2,4-Trichlorobenzene	120-82-1			2	2	mg/kg	0.002	U	0.12	U	0.0036	U	0.13	U	0.12	U
1,3,5-Trimethylbenzene	108-67-8			10	NS	mg/kg	0.002	U	0.12	U	0.0036	U	0.13	U	0.12	U
1,2,4-Trimethylbenzene	95-63-6			1000	NS	mg/kg	0.002	U	0.12	U	0.0036	U	0.13	U	0.12	U
Diethyl ether	60-29-7			100	NS	mg/kg	0.002	U	0.12	U	0.0036	U	0.13	U	0.12	U
Diisopropyl Ether	108-20-3			100	NS	mg/kg	0.002	U	0.12	U	0.0036	U	0.13	U	0.12	U
Ethyl-Tert-Butyl-Ether	637-92-3				NS	mg/kg	0.002	U	0.12	U	0.0036	U	0.13	U	0.12	U
Tertiary-Amyl Methyl Ether	994-05-8				NS	mg/kg	0.002	U	0.12	U	0.0036	U	0.13	U	0.12	U
1,4-Dioxane	123-91-1			0.2	0.2	mg/kg	0.082	U	4.8	U	0.14	U	5.2	U	4.8	U

Yellow shading indicates detected result is equal to or above one or more of the listed criteria.
Gray shading indicates nondetect detection limit is above one or more of the listed criteria.
Bold typeface indicates detection above metiond detection limit.

MA-LLAND: Lined Landfill Limits current as of August, 1997
MA-ULAND: UnLined Landfill Limits current as of August, 1997
RCS-1-14: MCP 2014 RCS-1 Reportable Concentrations Criteria effective April 25, 2014.
MCP 2014 S-1 Cleanup Criteria effective April 25, 2014; the lowest S-1/GW-X standard is shown.
**EPA-TCLP: EPA Toxicity Characteristic (TCLP) Regulatory Levels Criteria per 40CFR Part 261 as of September 10, 2015.

U - Not detected at the reported detection limit for the sample.
ND - Not detected.
E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
[1] - The laboratory reported two sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results and lowest detection limits have been tabulated. Refer to laboratory report for further detail.
[2] - The laboratory reported three sets of VOC results due to internal standard and/or surrogate nonconformances.
The highest detected results from the low-level analysis and detection limits from the high-level analysis have been tabulated due to significant internal standard issues with the low-level analysis. Refer to laboratory report for further detail.

Tables

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Green Line Extension
Washington Street Area
Soil - Volatile Organic Compounds

			Location	B-S004-1	B-S004-2	B-S004-3	B-S004-4	B-S004-5	B-S004-6	S-BB-1	S-BB-2	S-BB-3	S-BB-4	MW-5	MW-5R	KE-117	WASHINGTON ST_ZONE 1	WASHINGTON ST_ZONE 2	WASHINGTON ST_ZONE 3
			Start Depth	21	25	0	6	0	4	0	0	10	4	2	18	0.5	0	14	19
			End Depth	23	27	2	8	2	6	2	2	12	6	4	20	4	14	19	26
			Sample Date	5/24/2010	5/24/2010	5/21/2010	5/20/2010	5/19/2010	5/18/2010	5/13/2010	5/13/2010	5/14/2010	5/14/2010	5/14/2010	9/27/2012	8/23/2012	9/13/2012	9/13/2012	9/13/2012
Analyte	RCS-1	RCS-2	Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,1,1,2-Tetrachloroethane	0.1	0.1	mg/kg	<0.061	<0.073	<0.053	<0.10	<0.059	<0.065	<0.068	<0.068	<0.061	<0.068	<0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
1,1,1-Trichloroethane	30	600	mg/kg	< 0.057	< 0.073	< 0.053	< 1.0	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
1,1,2,2-Tetrachloroethane	0.005	0.02	mg/kg	<0.061	<0.073	<0.053	<0.10	<0.059	<0.065	<0.068	<0.068	<0.061	<0.068	<0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
1,1,2-Trichloroethane	0.1	2	mg/kg	< 0.057	< 0.073	< 0.053	<0.10	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
1,1-Dichloroethane	0.4	9	mg/kg	< 0.057	< 0.073	< 0.053	<0.10	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
1,1-Dichloroethylene	3	40	mg/kg	< 0.057	**0.09**	< 0.053	< 1.0	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
1,1-Dichloropropene	0.01	0.1	mg/kg	<0.061	<0.073	<0.053	<0.10	<0.059	<0.065	<0.068	<0.068	<0.061	<0.068	<0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
1,2,3-Trichlorobenzene				< 0.28	< 0.36	< 0.27	< 5.1	< 0.30	< 0.32	< 0.34	< 0.34	< 0.30	< 0.34	< 0.33	<0.2	< 0.3	< 0.21	< 0.18	< 0.2
1,2,3-Trichloropropane	100	1000	mg/kg	< 0.11	< 0.15	< 0.11	< 2.0	< 0.12	< 0.13	< 0.14	< 0.14	< 0.12	< 0.14	< 0.13	<0.1	< 0.15	< 0.11	< 0.092	< 0.1
1,2,4-Trichlorobenzene	2	6	mg/kg	< 0.057	< 0.073	< 0.053	< 1.0	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.1	< 0.074	< 0.11	< 0.092	< 0.1
1,2,4-Trimethylbenzene	1000	10000	mg/kg	< 0.057	< 0.073	< 0.053	< 1.0	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	**0.12**	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
1,2-Dibromo-3-chloropropane	10	100	mg/kg	< 0.57	< 0.73	< 0.53	<1.0	< 0.59	< 0.65	< 0.68	< 0.68	< 0.61	< 0.68	< 0.66	<0.2	< 0.37	< 0.21	< 0.18	< 0.2
1,2-Dibromoethane (Ethylene Dibromide)	~	~		< 0.028	< 0.036	< 0.027	< 0.51	< 0.030	< 0.032	< 0.034	< 0.034	< 0.030	< 0.034	< 0.033	<0.25	< 0.037	< 0.026	< 0.023	< 0.025
1,2-Dichlorobenzene	9	100	mg/kg	< 0.057	< 0.073	< 0.053	< 1.0	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
1,2-Dichloroethane	0.1	0.1	mg/kg	< 0.057	< 0.073	< 0.053	<0.10	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
1,2-Dichloropropane	0.1	0.1	mg/kg	< 0.057	< 0.073	< 0.053	<0.10	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
1,3,5-Trimethylbenzene	10	100	mg/kg	< 0.057	< 0.073	< 0.053	< 1.0	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
1,3-Dichlorobenzene	1	200	mg/kg	< 0.057	< 0.073	< 0.053	<1.0	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
1,3-Dichloropropane	500	5000	mg/kg	< 0.028	< 0.036	< 0.027	< 0.51	< 0.030	< 0.032	< 0.034	< 0.034	< 0.030	< 0.034	< 0.033	<0.025	< 0.037	< 0.026	< 0.023	< 0.025
1,4-Dichlorobenzene	0.7	1	mg/kg	< 0.057	< 0.073	< 0.053	<0.10	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
1,4-Dioxane	0.2	6	mg/kg	<2.8	<3.6	<2.7	<51	<3.0	<3.2	<3.4	<3.4	<3.0	<3.4	<3.3	<0.25	<3.7	<2.6	<2.3	<2.5
2,2-Dichloropropane	0.1	0.1	mg/kg	< 0.057	< 0.073	< 0.053	<0.10	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
2-Butanone	4	50	mg/kg	< 1.1	< 1.5	< 1.1	<20	< 1.2	< 1.3	< 1.4	< 1.4	< 1.2	< 1.4	< 1.3	<1	< 1.5	< 1.1	< 0.92	< 1
2-Chlorotoluene	100	1000	mg/kg	< 0.057	< 0.073	< 0.053	< 1.0	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
2-Hexanone	100	1000	mg/kg	< 0.57	< 0.73	< 0.53	< 10	< 0.59	< 0.65	< 0.68	< 0.68	< 0.61	< 0.68	< 0.66	<0.051	< 0.74	< 0.53	< 0.46	< 0.51
4-Chlorotoluene	100	1000	mg/kg	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
4-Isopropyltoluene	100	1000	mg/kg	< 0.057	< 0.073	< 0.053	< 1.0	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
4-Methyl-2-pentanone	0.4	50	mg/kg	<0.57	<0.73	<0.53	<10	<0.59	<0.65	<0.68	<0.68	<0.61	<0.68	<0.66	<0.051	<0.74	<0.53	<0.46	<0.51
Acetone	6	50	mg/kg	< 2.8	< 3.6	< 2.7	<51	< 3.0	< 3.2	< 3.4	< 3.4	< 3.0	< 3.4	< 3.3	<2.5	< 3.7	< 2.6	< 2.3	< 2.5
Benzene	2	200	mg/kg	< 0.060	< 0.073	< 0.053	< 0.098	< 0.059	< 0.065	< 0.068	< 0.066	< 0.070	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
Bromobenzene	100	1000	mg/kg	< 0.057	< 0.073	< 0.053	< 1.0	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
Bromochloromethane	~	~		< 0.057	< 0.073	< 0.053	< 1.0	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
Bromodichloromethane	0.1	0.1	mg/kg	< 0.057	< 0.073	< 0.053	<0.10	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
Bromoform	0.1	1	mg/kg	<0.61	<0.73	<0.53	<20	<0.59	<0.65	<0.68	<0.68	<0.61	<0.68	<0.66	<0.051	4.57	< 0.053	< 0.046	< 0.051
Bromomethane	0.5	0.5	mg/kg	<0.57	<0.73	<0.53	<10	<0.59	<0.65	<0.68	<0.68	<0.61	<0.68	<0.66	<0.1	< 0.15	< 0.11	< 0.092	< 0.1
Carbon disulfide	100	1000	mg/kg	< 0.57	< 0.73	< 0.53	< 10	< 0.59	< 0.65	< 0.68	< 0.68	< 0.61	< 0.68	< 0.66	<0.051	< 0.74	< 0.53	< 0.46	< 0.51
Carbon tetrachloride	5	5	mg/kg	< 0.23	< 0.29	< 0.21	< 4.1	< 0.24	< 0.26	< 0.27	< 0.27	< 0.24	< 0.27	< 0.26	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
Chlorobenzene	1	3	mg/kg	< 0.057	< 0.073	< 0.053	<1.0	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
Chloroethane	100	1000	mg/kg	< 0.11	< 0.15	< 0.11	< 2.0	< 0.12	< 0.13	< 0.14	< 0.14	< 0.12	< 0.14	< 0.13	<0.1	< 0.15	< 0.11	< 0.092	< 0.1
Chloroform	0.2	0.2	mg/kg	< 0.11	<0.15	< 0.11	<2.0	< 0.12	< 0.13	< 0.14	< 0.14	< 0.12	< 0.14	< 0.13	<0.1	<0.15	< 0.11	< 0.092	< 0.1
Chloromethane	100	1000	mg/kg	< 0.11	< 0.15	< 0.11	< 2.0	< 0.12	< 0.13	< 0.14	< 0.14	< 0.12	< 0.14	< 0.13	<0.1	< 0.15	< 0.11	< 0.092	< 0.1
Chlorotoluene	~	~		< 0.057	< 0.073	< 0.053	< 1.0	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066		NT	NT	NT	NT
cis-1,2-Dichloroethylene	0.1	0.1	mg/kg	< 0.057	0.73	< 0.053	<0.10	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
cis-1,3-Dichloropropene	0.01	0.1	mg/kg	<0.028	<0.036	<0.027	<0.51	<0.030	<0.032	<0.034	<0.034	<0.030	<0.034	<0.033	<0.051	<0.074	<0.053	<0.046	<0.051
Dibromochloromethane	0.005	0.03	mg/kg	<0.11	<0.15	<0.11	<2.0	<0.12	<0.13	<0.14	<0.14	<0.12	<0.14	<0.13	<0.1	<0.15	<0.11	<0.092	<0.1
Dibromomethane	500	5000	mg/kg	< 0.057	< 0.073	< 0.053	< 1.0	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
Dichlorodifluoromethane	1000	10000	mg/kg	< 0.11	< 0.15	< 0.11	< 2.0	< 0.12	< 0.13	< 0.14	< 0.14	< 0.12	< 0.14	< 0.13	<0.1	< 0.15	< 0.11	< 0.092	< 0.1
Diethyl ether	100	1000	mg/kg	< 0.11	< 0.15	< 0.11	< 2.0	< 0.12	< 0.13	< 0.14	< 0.14	< 0.12	< 0.14	< 0.13	<0.1	< 0.15	< 0.11	< 0.092	< 0.1
Ethyl tert-butyl ether	~	~		< 0.028	< 0.036	< 0.027	< 0.51	< 0.030	< 0.032	< 0.034	< 0.034	< 0.030	< 0.034	< 0.033	<0.25	< 0.037	< 0.026	< 0.023	< 0.025
Ethylbenzene	40	1000	mg/kg	< 0.060	< 0.073	< 0.053	< 0.098	< 0.059	< 0.065	< 0.068	< 0.066	< 0.070	< 0.068	**0.09**	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
Hexachlorobutadiene	30	100	mg/kg	< 0.057	< 0.073	< 0.053	< 1.0	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
Isopropyl ether	100	1000	mg/kg	< 0.028	< 0.036	< 0.027	< 0.51	< 0.030	< 0.032	< 0.034	< 0.034	< 0.030	< 0.034	< 0.033	<0.25	< 0.037	< 0.026	< 0.023	< 0.025
Isopropylbenzene	1000	10000	mg/kg	< 0.057	< 0.073	< 0.053	< 1.0	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
m/p-Xylene	100	100	mg/kg	< 0.11	< 0.15	< 0.11	< 2.0	< 0.12	< 0.13	< 0.14	< 0.14	< 0.12	< 0.14	**0.21**	<0.1	< 0.15	< 0.11	< 0.092	< 0.1
Methyl tert-butyl ether	0.1	100	mg/kg	< 0.060	< 0.073	< 0.053	<0.098	< 0.059	< 0.065	< 0.068	< 0.066	< 0.070	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
Methylene chloride	0.1	20	mg/kg	<0.029	<0.036	<0.027	<0.51	<0.030	<0.032	<0.034	<0.034	<0.030	<0.034	<0.033	<0.025	<0.37	<0.026	<0.023	<0.025
Naphthalene	4	20	mg/kg	< 0.60	< 0.15	< 0.11	< 0.98	**0.35**	< 0.13	**0.19**	< 0.66	< 0.70	< 0.14	< 0.13	<0.1	< 0.15	< 0.11	< 0.092	< 0.1
n-Butylbenzene	~	~		< 0.057	< 0.073	< 0.053	< 1.0	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
o-Xylene	100	100	mg/kg	< 0.060	< 0.073	< 0.053	< 0.098	< 0.059	< 0.065	**0.07**	< 0.066	< 0.070	< 0.068	**0.11**	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
Propylbenzene	100	1000	mg/kg	< 0.057	< 0.073	< 0.053	< 1.0	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
sec-Butylbenzene	~	~		< 0.057	< 0.073	< 0.053	< 1.0	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.097	< 0.074	< 0.053	< 0.046	< 0.051
Styrene	3	4	mg/kg	< 0.057	< 0.073	< 0.053	< 1.0	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
tert-Amyl methyl ether	~	~		< 0.028	< 0.036	< 0.027	< 0.51	< 0.030	< 0.032	< 0.034	< 0.034	< 0.030	< 0.034	< 0.033	<0.25	< 0.037	< 0.026	< 0.023	< 0.025
tert-Butylbenzene	100	1000	mg/kg	< 0.057	< 0.073	< 0.053	< 1.0	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
Tetrachloroethylene	1	10	mg/kg	**0.49**	0.80	< 0.053	<0.10	**0.21**	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
Tetrahydrofuran	500	5000	mg/kg	< 0.57	< 0.73	< 0.53	< 10	< 0.59	< 0.65	< 0.68	< 0.68	< 0.61	< 0.68	< 0.66	<0.2	< 0.3	< 0.21	< 0.18	< 0.2
Toluene	30	1000	mg/kg	< 0.060	< 0.073	< 0.053	< 0.098	**0.17**	**0.09**	**0.09**	< 0.066	< 0.070	< 0.068	**0.13**	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
trans-1,2-Dichloroethylene	1	1	mg/kg	< 0.057	< 0.073	< 0.053	<0.10	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
trans-1,3-Dichloropropene	0.01	0.1	mg/kg	<0.028	<0.036	<0.027	<0.51	<0.030	<0.032	<0.034	<0.034	<0.030	<0.034	<0.033	<0.25	<0.37	<0.026	<0.023	<0.025
Trichloroethylene	0.3	0.3	mg/kg	< 0.057	2.70	< 0.053	<0.10	< 0.059	< 0.065	< 0.068	< 0.068	< 0.061	< 0.068	< 0.066	<0.051	< 0.074	< 0.053	< 0.046	< 0.051
Trichlorofluoromethane	1000	10000	mg/kg	< 0.11	< 0.15	< 0.11	< 2.0	< 0.12	< 0.13	< 0.14	< 0.14	< 0.12	< 0.14	< 0.13	<0.1	< 0.15	< 0.11	< 0.092	< 0.1
Vinyl chloride	0.7	0.7	mg/kg	< 0.11	< 0.15	< 0.11	<2.0	< 0.12	< 0.13	< 0.14	< 0.14	< 0.12	< 0.14	< 0.13	<0.1	< 0.15	< 0.11	< 0.092	< 0.1

Notes:

Bold - Analyte detected above laboratory detection limits
Bold and Shaded (Blue) - Analyte detected above RCS-1
Underlined - Analyte detected above RCS-2
Bold and Gray: RL > RCS-1
~ No standard promulgated
NT- Not tested

Green Line Extension
Washington Street Area
Soil - Volatile Organic Compounds

			Location	WASHINGTON ST_ZONE 4	NDB-26	NDB-27	KE-202-WS-D	KE-202-WS-D	KE-202-WS-S	KE-204-WS	KE-204-WS	KE-205-WS	KE-205-WS	KE-206-WS	KE-206-WS	KE-207-WS	KE-208-WS	KE-209-WS	KE-210-WS	KE-210-WS
			Start Depth	26	0.5	6.5	19	24	14	0	18	0	14	10	17	14	8	15	6	15
			End Depth	32	12	27	21	26	16	1	20	2	16	10.5	19	16	8.5	17	6.5	17
			Sample Date	9/13/2012	1/7/2014	1/6/2014	3/25/2014	3/25/2014	3/25/2014	3/25/2014	4/2/2014	4/1/2014	4/1/2014	3/25/2014	4/3/2014	3/31/2014	3/25/2014	3/26/2014	3/26/2014	4/7/2014
Analyte	RCS-1	RCS-2	Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,1,1,2-Tetrachloroethane	0.1	0.1	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
1,1,1-Trichloroethane	30	600	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	**0.01**	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	**0.04**
1,1,2,2-Tetrachloroethane	0.005	0.02	mg/kg	<0.0018	< 0.0018	< 0.002	< 0.00077	< 0.00071	< 0.00067	< 0.00083	< 0.0012	< 0.0014	< 0.0011	< 0.00084	< 0.0015	< 0.0012	< 0.00086	< 0.00078	< 0.0014	< 0.0016
1,1,2-Trichloroethane	0.1	2	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
1,1-Dichloroethane	0.4	9	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	**0.01**	**0.04**
1,1-Dichloroethylene	3	40	mg/kg	< 0.045	< 0.0072	< 0.0082	< 0.0031	< 0.0028	< 0.0027	< 0.0033	< 0.0049	< 0.0055	< 0.0045	< 0.0034	< 0.0059	< 0.0049	< 0.0034	< 0.0031	< 0.0055	**0.03**
1,1-Dichloropropene	0.01	0.1	mg/kg	<0.05	< 0.0036	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
1,2,3-Trichlorobenzene				< 0.18	< 0.018	< 0.02	< 0.0077	< 0.0071	< 0.0067	< 0.0083	< 0.012	< 0.014	< 0.011	< 0.0084	< 0.015	< 0.012	< 0.0086	< 0.0078	< 0.014	< 0.016
1,2,3-Trichloropropane	100	1000	mg/kg	< 0.09	< 0.0036	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
1,2,4-Trichlorobenzene	2	6	mg/kg	< 0.09	< 0.018	< 0.02	< 0.0077	< 0.0071	< 0.0067	< 0.0083	< 0.012	< 0.014	< 0.011	< 0.0084	< 0.015	< 0.012	< 0.0086	< 0.0078	< 0.014	< 0.016
1,2,4-Trimethylbenzene	1000	10000	mg/kg	< 0.045	**0.03**	< 0.0082	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
1,2-Dibromo-3-chloropropane	10	100	mg/kg	< 0.18	< 0.018	< 0.02	< 0.0077	< 0.0014	< 0.0067	< 0.0017	< 0.012	< 0.014	< 0.011	< 0.0017	< 0.015	< 0.012	< 0.0017	< 0.0078	< 0.014	< 0.016
1,2-Dibromoethane (Ethylene Dibromide)	~	~		< 0.023	< 0.0018	< 0.002	< 0.00077	< 0.00071	< 0.00067	< 0.00083	< 0.0012	< 0.0014	< 0.0011	< 0.00084	< 0.0015	< 0.0012	< 0.00086	< 0.00078	< 0.0014	< 0.0016
1,2-Dichlorobenzene	9	100	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
1,2-Dichloroethane	0.1	0.1	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
1,2-Dichloropropane	0.1	0.1	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
1,3,5-Trimethylbenzene	10	100	mg/kg	< 0.045	**0.01**	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
1,3-Dichlorobenzene	1	200	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
1,3-Dichloropropane	500	5000	mg/kg	< 0.023	< 0.0018	< 0.002	< 0.00077	< 0.00071	< 0.00067	< 0.00083	< 0.0012	< 0.0014	< 0.0011	< 0.00084	< 0.0015	< 0.0012	< 0.00086	< 0.00078	< 0.0014	< 0.0016
1,4-Dichlorobenzene	0.7	1	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
1,4-Dioxane	0.2	6	mg/kg	<2.3	< 0.18	<0.2	< 0.077	< 0.071	< 0.067	< 0.083	< 0.12	< 0.14	< 0.11	< 0.084	< 0.15	< 0.12	< 0.086	< 0.078	< 0.14	< 0.16
2,2-Dichloropropane	0.1	0.1	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0077	< 0.0014	< 0.0067	< 0.0017	< 0.012	< 0.014	< 0.011	< 0.0017	< 0.015	< 0.012	< 0.0017	< 0.0078	< 0.014	< 0.016
2-Butanone	4	50	mg/kg	< 0.9	< 0.072	< 0.082	< 0.031	< 0.028	< 0.027	< 0.033	< 0.049	< 0.055	< 0.045	< 0.034	< 0.059	< 0.049	< 0.034	< 0.031	< 0.055	< 0.062
2-Chlorotoluene	100	1000	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
2-Hexanone	100	1000	mg/kg	< 0.45	< 0.072	< 0.082	< 0.015	< 0.014	< 0.013	< 0.017	< 0.024	< 0.027	< 0.022	< 0.017	< 0.029	< 0.025	< 0.017	< 0.016	< 0.028	< 0.031
4-Chlorotoluene	100	1000	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
4-Isopropyltoluene	100	1000	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
4-Methyl-2-pentanone	0.4	50	mg/kg	<0.45	< 0.036	< 0.041	< 0.015	< 0.014	< 0.013	< 0.017	< 0.024	< 0.027	< 0.022	< 0.017	< 0.029	< 0.025	< 0.017	< 0.016	< 0.028	< 0.031
Acetone	6	50	mg/kg	< 2.3	< 0.18	< 0.2	< 0.077	< 0.071	< 0.067	< 0.083	< 0.12	< 0.14	< 0.11	< 0.084	< 0.15	< 0.12	< 0.086	< 0.078	< 0.14	< 0.16
Benzene	2	200	mg/kg	< 0.045	**0.01**	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
Bromobenzene	100	1000	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
Bromochloromethane	~	~		< 0.045	< 0.0036	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
Bromodichloromethane	0.1	0.1	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
Bromoform	0.1	1	mg/kg	< 0.045	< 0.018	< 0.02	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
Bromomethane	0.5	0.5	mg/kg	< 0.09	< 0.018	< 0.02	< 0.0077	< 0.0071	< 0.0067	< 0.0083	< 0.012	< 0.014	< 0.011	< 0.0084	< 0.015	< 0.012	< 0.0086	< 0.0078	< 0.014	< 0.016
Carbon disulfide	100	1000	mg/kg	< 0.45	< 0.011	< 0.012	< 0.0046	< 0.0043	< 0.004	< 0.005	< 0.0073	< 0.0082	< 0.0067	< 0.0051	< 0.0088	< 0.0074	< 0.0051	< 0.0047	< 0.0083	< 0.0093
Carbon tetrachloride	5	5	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
Chlorobenzene	1	3	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
Chloroethane	100	1000	mg/kg	< 0.09	< 0.018	< 0.02	< 0.0077	< 0.0071	< 0.0067	< 0.0083	< 0.012	< 0.014	< 0.011	< 0.0084	< 0.015	< 0.012	< 0.0086	< 0.0078	< 0.014	< 0.016
Chloroform	0.2	0.2	mg/kg	< 0.09	< 0.0072	< 0.0082	< 0.0031	< 0.0028	< 0.0027	< 0.0033	< 0.0049	< 0.0055	< 0.0045	< 0.0034	< 0.0059	< 0.0049	< 0.0034	< 0.0031	< 0.0055	< 0.0062
Chloromethane	100	1000	mg/kg	< 0.09	< 0.018	< 0.02	< 0.0077	< 0.0071	< 0.0067	< 0.0083	< 0.012	< 0.014	< 0.011	< 0.0084	< 0.015	< 0.012	< 0.0086	< 0.0078	< 0.014	< 0.016
Chlorotoluene	~	~		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
cis-1,2-Dichloroethylene	0.1	0.1	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0015	**0.01**	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	**0.03**	< 0.0016	**0.04**	< 0.0031
cis-1,3-Dichloropropene	0.01	0.1	mg/kg	<0.0072	< 0.0072	< 0.0082	< 0.00077	< 0.00071	< 0.00067	< 0.00083	< 0.0012	< 0.0014	< 0.0011	< 0.00084	< 0.0015	< 0.0012	< 0.00086	< 0.00078	< 0.0014	< 0.0016
Dibromochloromethane	0.005	0.03	mg/kg	<0.072	<0.0072	<0.0082	< 0.00077	< 0.00071	< 0.00067	< 0.00083	< 0.0012	< 0.0014	< 0.0011	< 0.00084	< 0.0015	< 0.0012	< 0.00086	< 0.00078	< 0.0014	< 0.0016
Dibromomethane	500	5000	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
Dichlorodifluoromethane	1000	10000	mg/kg	< 0.09	< 0.018	< 0.02	< 0.0077	< 0.0071	< 0.0067	< 0.0083	< 0.012	< 0.014	< 0.011	< 0.0084	< 0.015	< 0.012	< 0.0086	< 0.0078	< 0.014	< 0.016
Diethyl ether	100	1000	mg/kg	< 0.09	< 0.018	< 0.02	< 0.0077	< 0.0071	< 0.0067	< 0.0083	< 0.012	< 0.014	< 0.011	< 0.0084	< 0.015	< 0.012	< 0.0086	< 0.0078	< 0.014	< 0.016
Ethyl tert-butyl ether	~	~		< 0.023	< 0.0018	< 0.002	< 0.00077	< 0.00071	< 0.00067	< 0.00083	< 0.0012	< 0.0014	< 0.0011	< 0.00084	< 0.0015	< 0.0012	< 0.00086	< 0.00078	< 0.0014	< 0.0016
Ethylbenzene	40	1000	mg/kg	< 0.045	**0.02**	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
Hexachlorobutadiene	30	100	mg/kg	< 0.045	< 0.0072	< 0.0082	< 0.0031	< 0.0014	< 0.0027	< 0.0017	< 0.0049	< 0.055	< 0.0045	< 0.0017	< 0.0059	< 0.0049	< 0.0017	< 0.0031	< 0.0055	< 0.0062
Isopropyl ether	100	1000	mg/kg	< 0.023	< 0.0018	< 0.002	< 0.00077	< 0.00071	< 0.00067	< 0.00083	< 0.0012	< 0.0014	< 0.0011	< 0.00084	< 0.0015	< 0.0012	< 0.00086	< 0.00078	< 0.0014	< 0.0016
Isopropylbenzene	1000	10000	mg/kg	< 0.045	**0.01**	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
m/p-Xylene	100	100	mg/kg	< 0.09	**0.01**	< 0.0082	< 0.0031	< 0.0028	< 0.0027	< 0.0033	< 0.0049	< 0.0055	< 0.0045	< 0.0034	< 0.0059	< 0.0049	< 0.0034	< 0.0031	< 0.0055	< 0.0062
Methyl tert-butyl ether	0.1	100	mg/kg	< 0.045	< 0.0072	< 0.0082	< 0.0031	< 0.0028	< 0.0027	< 0.0033	< 0.0049	< 0.0055	< 0.0045	< 0.0034	< 0.0059	< 0.0049	< 0.0034	< 0.0031	< 0.0055	< 0.0062
Methylene chloride	0.1	20	mg/kg	<0.23	< 0.018	< 0.02	< 0.0077	< 0.0071	< 0.0067	< 0.0083	< 0.012	< 0.014	< 0.011	< 0.0084	< 0.015	< 0.012	< 0.0086	< 0.0078	**0.02**	< 0.016
Naphthalene	4	20	mg/kg	< 0.09	**0.03**	< 0.02	< 0.0077	< 0.0071	< 0.0067	< 0.0083	< 0.012	< 0.014	< 0.011	< 0.0084	< 0.015	< 0.012	< 0.0086	< 0.0078	< 0.014	< 0.016
n-Butylbenzene	~	~		< 0.045	< 0.0072	< 0.0082	< 0.0031	< 0.0014	< 0.0027	< 0.0017	< 0.0049	< 0.0055	< 0.0045	< 0.0017	< 0.0059	< 0.0049	< 0.0017	< 0.0031	< 0.0055	< 0.0062
o-Xylene	100	100	mg/kg	< 0.045	**0.02**	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
Propylbenzene	100	1000	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
sec-Butylbenzene	~	~		< 0.045	< 0.0036	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
Styrene	3	4	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
tert-Amyl methyl ether	~	~		< 0.023	< 0.0018	< 0.002	< 0.00077	< 0.00071	< 0.00067	< 0.00083	< 0.0012	< 0.0014	< 0.0011	< 0.00084	< 0.0015	< 0.0012	< 0.00086	< 0.00078	< 0.0014	< 0.0016
tert-Butylbenzene	100	1000	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0031	< 0.0014	< 0.0027	< 0.0017	< 0.0049	< 0.0055	< 0.0045	< 0.0017	< 0.0059	< 0.0049	< 0.0017	< 0.0031	< 0.0055	< 0.0062
Tetrachloroethylene	1	10	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0015	**0.04**	< 0.0013	< 0.0017	**0.01**	< 0.0027	< 0.0022	<0.001	**0.04**	< 0.0025	<0.001	< 0.0016	**0.05**	<0.01
Tetrahydrofuran	500	5000	mg/kg	< 0.18	< 0.018	< 0.02	< 0.0077	< 0.0071	< 0.0067	< 0.0083	< 0.012	< 0.014	< 0.011	< 0.0084	< 0.015	< 0.012	< 0.0086	< 0.0078	< 0.014	< 0.016
Toluene	30	1000	mg/kg	< 0.045	**0.00**	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	< 0.0031
trans-1,2-Dichloroethylene	1	1	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	**0.00**	< 0.0031
trans-1,3-Dichloropropene	0.01	0.1	mg/kg	<0.0023	<0.0018	<0.002	< 0.0031	< 0.00071	< 0.0027	< 0.00083	< 0.0049	< 0.0055	< 0.0045	< 0.00084	< 0.0059	< 0.0049	< 0.00086	< 0.0031	< 0.0055	< 0.0062
Trichloroethylene	0.3	0.3	mg/kg	< 0.045	< 0.0036	< 0.0041	< 0.0015	**0.01**	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	**0.03**	< 0.0029	< 0.0025	**0.02**	< 0.0016	**0.05**	**0.19**
Trichlorofluoromethane	1000	10000	mg/kg	< 0.09	< 0.018	< 0.02	< 0.0077	< 0.0071	< 0.0067	< 0.0083	< 0.012	< 0.014	< 0.011	< 0.0084	< 0.015	< 0.012	< 0.0086	< 0.0078	< 0.014	< 0.016
Vinyl chloride	0.7	0.7	mg/kg	< 0.09	< 0.018	< 0.02	< 0.0077	< 0.0071	< 0.0067	< 0.0083	< 0.012	< 0.014	< 0.011	< 0.0084	< 0.015	< 0.012	< 0.0086	< 0.0078	< 0.014	< 0.016

Notes:

Bold - Analyte detected above laboratory detection limits
Bold and Shaded (Blue) - Analyte detected above RCS-1
Underlined - Analyte detected above RCS-2
Bold and Gray: RL > RCS-1
~ No standard promulgated
NT- Not tested

Kleinfelder

Green Line Extension
Washington Street Area
Soil - Volatile Organic Compounds

			Location	KE-211-WS	KE-211-WS
			Start Depth	0	24
			End Depth	6	25
			Sample Date	3/26/2014	3/29/2014
Analyte	RCS-1	RCS-2	Unit	Result	Result
1,1,1,2-Tetrachloroethane	0.1	0.1	mg/kg	< 0.0023	< 0.0015
1,1,1-Trichloroethane	30	600	mg/kg	**0.00**	< 0.0015
1,1,2,2-Tetrachloroethane	0.005	0.02	mg/kg	< 0.0011	< 0.00076
1,1,2-Trichloroethane	0.1	2	mg/kg	< 0.0023	< 0.0015
1,1-Dichloroethane	0.4	9	mg/kg	< 0.0023	< 0.0015
1,1-Dichloroethylene	3	40	mg/kg	< 0.0046	< 0.0031
1,1-Dichloropropene	0.01	0.1	mg/kg	< 0.0023	< 0.0015
1,2,3-Trichlorobenzene				< 0.011	< 0.0076
1,2,3-Trichloropropane	100	1000	mg/kg	< 0.0023	< 0.0015
1,2,4-Trichlorobenzene	2	6	mg/kg	< 0.011	< 0.0076
1,2,4-Trimethylbenzene	1000	10000	mg/kg	< 0.0023	< 0.0015
1,2-Dibromo-3-chloropropane	10	100	mg/kg	< 0.011	< 0.0076
1,2-Dibromoethane (Ethylene Dibromide)	~	~		< 0.0011	< 0.00076
1,2-Dichlorobenzene	9	100	mg/kg	< 0.0023	< 0.0015
1,2-Dichloroethane	0.1	0.1	mg/kg	< 0.0023	< 0.0015
1,2-Dichloropropane	0.1	0.1	mg/kg	< 0.0023	< 0.0015
1,3,5-Trimethylbenzene	10	100	mg/kg	< 0.0023	< 0.0015
1,3-Dichlorobenzene	1	200	mg/kg	< 0.0023	< 0.0015
1,3-Dichloropropane	500	5000	mg/kg	< 0.0011	< 0.00076
1,4-Dichlorobenzene	0.7	1	mg/kg	< 0.0023	< 0.0015
1,4-Dioxane	0.2	6	mg/kg	< 0.11	< 0.076
2,2-Dichloropropane	0.1	0.1	mg/kg	< 0.011	< 0.0076
2-Butanone	4	50	mg/kg	< 0.046	< 0.031
2-Chlorotoluene	100	1000	mg/kg	< 0.0023	< 0.0015
2-Hexanone	100	1000	mg/kg	< 0.023	< 0.015
4-Chlorotoluene	100	1000	mg/kg	< 0.0023	< 0.0015
4-Isopropyltoluene	100	1000	mg/kg	< 0.0023	< 0.0015
4-Methyl-2-pentanone	0.4	50	mg/kg	< 0.023	< 0.015
Acetone	6	50	mg/kg	< 0.11	< 0.076
Benzene	2	200	mg/kg	< 0.0023	< 0.0015
Bromobenzene	100	1000	mg/kg	< 0.0023	< 0.0015
Bromochloromethane	~	~		< 0.0023	< 0.0015
Bromodichloromethane	0.1	0.1	mg/kg	< 0.0023	< 0.0015
Bromoform	0.1	1	mg/kg	< 0.0023	< 0.0015
Bromomethane	0.5	0.5	mg/kg	< 0.011	< 0.0076
Carbon disulfide	100	1000	mg/kg	< 0.0069	< 0.0046
Carbon tetrachloride	5	5	mg/kg	< 0.0023	< 0.0015
Chlorobenzene	1	3	mg/kg	< 0.0023	< 0.0015
Chloroethane	100	1000	mg/kg	< 0.011	< 0.0076
Chloroform	0.2	0.2	mg/kg	< 0.0046	< 0.0031
Chloromethane	100	1000	mg/kg	< 0.011	< 0.0076
Chlorotoluene	~	~		NT	NT
cis-1,2-Dichloroethylene	0.1	0.1	mg/kg	< 0.0023	< 0.0015
cis-1,3-Dichloropropene	0.01	0.1	mg/kg	< 0.0011	< 0.00076
Dibromochloromethane	0.005	0.03	mg/kg	< 0.0011	< 0.00076
Dibromomethane	500	5000	mg/kg	< 0.0023	< 0.0015
Dichlorodifluoromethane	1000	10000	mg/kg	< 0.011	< 0.0076
Diethyl ether	100	1000	mg/kg	< 0.011	< 0.0076
Ethyl tert-butyl ether	~	~		< 0.0011	< 0.00076
Ethylbenzene	40	1000	mg/kg	< 0.0023	< 0.0015
Hexachlorobutadiene	30	100	mg/kg	< 0.0046	< 0.0031
Isopropyl ether	100	1000	mg/kg	< 0.0011	< 0.00076
Isopropylbenzene	1000	10000	mg/kg	< 0.0023	< 0.0015
m/p-Xylene	100	100	mg/kg	< 0.0046	< 0.0031
Methyl tert-butyl ether	0.1	100	mg/kg	< 0.0046	< 0.0031
Methylene chloride	0.1	20	mg/kg	< 0.011	< 0.0076
Naphthalene	4	20	mg/kg	< 0.011	< 0.0076
n-Butylbenzene	~	~		< 0.0046	< 0.0031
o-Xylene	100	100	mg/kg	< 0.0023	< 0.0015
Propylbenzene	100	1000	mg/kg	< 0.0023	< 0.0015
sec-Butylbenzene	~	~		< 0.0023	< 0.0015
Styrene	3	4	mg/kg	< 0.0023	< 0.0015
tert-Amyl methyl ether	~	~		< 0.0011	< 0.00076
tert-Butylbenzene	100	1000	mg/kg	< 0.0046	< 0.0031
Tetrachloroethylene	1	10	mg/kg	**0.07**	< 0.0015
Tetrahydrofuran	500	5000	mg/kg	< 0.011	< 0.0076
Toluene	30	1000	mg/kg	< 0.0023	< 0.0015
trans-1,2-Dichloroethylene	1	1	mg/kg	< 0.0023	< 0.0015
trans-1,3-Dichloropropene	0.01	0.1	mg/kg	< 0.0046	< 0.0031
Trichloroethylene	0.3	0.3	mg/kg	**0.00**	< 0.0015
Trichlorofluoromethane	1000	10000	mg/kg	< 0.011	< 0.0076
Vinyl chloride	0.7	0.7	mg/kg	< 0.011	< 0.0076

Notes:

Bold - Analyte detected above laboratory detection limits
Bold and Shaded (Blue) - Analyte detected above RCS-1
Underlined - Analyte detected above RCS-2
Bold and Gray: RL > RCS-1
~ No standard promulgated
NT- Not tested

Appendix E

Pre-Sampling Checklists, Air Sampling Checklists, and Photo Logs

GEI Consultants

SUB-SLAB SAMPLING CHECKLIST

Sampling Location:
13 Knowlton Street
SS-1

Sample ID: 045163-13KNOW-SS-1

Date: 11/22/2019
Sampling personnel: M. Greer
Summa Canister ID: 2687
Flow Regulator ID: 0454
Sample Type / Analysis Method: SUMMA/TO-15
Sampling Start Time: 8:19
Sampling Finish Time: 9:19

During Sampling	
Time	**Vacuum**
8:28	-25.89
8:41	-20.48
8:51	-16.25
9:06	-10.60

Did Summa Canister go to ambient pressure? No

Pressure gauge reading (Pre-opening): Flow Controller: --29.58 in.Hg
Pressure gauge reading (After sample collected): Flow Controller: -6.52 in.Hg

Environmental Conditions (Outside):	**Before Sampling**	**After Sampling**
Temperature:	50°	50°
Barometric Pressure:	29.78	29.78
Prevailing Wind Direction:	Southwest	Southwest
General Weather Conditions:	Cloudy	Cloudy

Photographs taken before sampling? No **If Yes, what time:** NA **Taken by:** NA
Vacuum prior to sampling (in. WC): 0.006
Ambient air concentration (ppm): 0.0
Soil gas concentration prior to sampling (ppm): 0.2
Vapor point purged for 5 minutes **with a MiniRAE (500-600 cc/min) prior to sampling.**

Comments:

GEI Consultants

AMBIENT AIR SAMPLING CHECKLIST

Sampling Location:
13 Knowlton Street
First Floor

Sample ID: 045163-13KNOW-1

Date: 11/21/19-11/22/19
Sampling personnel: M. Greer
Summa Canister ID: 1553
Flow Regulator ID: 0483
Sample Type / Analysis Method: TO15/Summa
Sampling Start Time: 8:17
Sampling Finish Time: 8:01

During Sampling	
Time	**Vacuum**

Did Summa canister go to ambient pressure? Yes / **No**
Vacuum pressure reported by Laboratory: ---

Pressure gauge reading (Pre-opening): **Flow Controller: -30.92** in. Hg
Pressure gauge reading (After sample collected): **Flow Controller:** -4.33 in. Hg

Environmental Conditions (Outside):	**Before Sampling**	**After Sampling**
Temperature (°F):	40°	50°
Barometric Pressure (in. Hg):	29.9	29.78
Prevailing Wind Direction:	North	Southwest
General Weather Conditions:	Sunny	Cloudy

Environmental Conditions (At Sample Location):	**Before Sampling**	**After Sampling**
Temperature (°F):	67°	67°
Barometric Pressure (in. Hg):	NM	NM

PID readings at sample location (ppm): 0.1 ppm

Photographs taken before sampling? Yes / **No** **If Yes, what time:** 8:17 **Taken by:** MEG
Photographs taken after sampling? Yes / **No** **If Yes, what time:** NA **Taken by:** NA

Was the building aired out prior to sample collection? Yes / **No** **If yes, how long?**
Windows open? Yes / **No** **Ventilation fans? Yes** */ No
Was there significant precipitation within 12 hours of (or during) the sampling event? Yes / **No**
Were any of the residents home during sampling? Yes / No **If yes, provide detail:** Tenant
Did any of the occupants NOT follow instruction for residents? Yes / **No** **If yes, describe below:**

Notes:

Air intake at 54".
Property has an active SSDS. Prior to collection of samples, the system was shut off and the valve was closed for seven days.

GEI Consultants

AMBIENT AIR SAMPLING CHECKLIST

Sampling Location: 13 Knowlton Street Basement

Sample ID: 045163-13KNOW-B

Date: 11/21/19-11/22/9

Sampling personnel: M. Greer

Summa Canister ID: 3276

Flow Regulator ID: 0555

Sample Type / Analysis Method: TO15/Summa

Sampling Start Time: 8:22

Sampling Finish Time: 8:05

During Sampling	
Time	**Vacuum**

Did Summa canister go to ambient pressure? Yes / **No**

Vacuum pressure reported by Laboratory: ---

Pressure gauge reading (Pre-opening): Flow Controller: -30.90 in. Hg

Pressure gauge reading (After sample collected): Flow Controller: -6.68 in. Hg

Environmental Conditions (Outside):	**Before Sampling**	**After Sampling**
Temperature (°F):	40°	50°
Barometric Pressure (in. Hg):	29.9	29.78
Prevailing Wind Direction:	North	Southwest
General Weather Conditions:	Sunny	Cloudy

Environmental Conditions (At Sample Location):	**Before Sampling**	**After Sampling**
Temperature (°F):	63.3	58.4
Barometric Pressure (in. Hg):	NM	NM

PID readings at sample location (ppm): 0.0 ppm

Photographs taken before sampling? Yes / No **If Yes, what time:** 8:23 **Taken by:** MEG

Photographs taken after sampling? Yes / **No** **If Yes, what time: NA Taken by: NA**

Was the building aired out prior to sample collection? Yes / **No** **If yes, how long?**

Windows open? Yes / **No** **Ventilation fans? Yes** */ No

Was there significant precipitation within 12 hours of (or during) the sampling event? Yes / **No**

Were any of the residents home during sampling? Yes / No **If yes, provide detail:** Tenant

Did any of the occupants NOT follow instruction for residents? Yes / **No** **If yes, describe below:**

Notes:

Air intake at 40".
Property has an active SSDS. Prior to collection of samples, the system was shut off and the valve was closed for seven days.

13 Knowlton Street Air Samples (11/22/19)

Photo 1: 13 Knowlton first floor air sample.

Photo 2: 13 Knowlton basement air sample.

Photo 3: Soil gas sample.

GEI Consultants

SUB-SLAB SAMPLING CHECKLIST

Sampling Location:
163 Glen Street
SSV-2

Sample ID: 045163-163Glen-SSV2

Date: 11/27/2019
Sampling personnel: S. Trant
Summa Canister ID: 282
Flow Regulator ID: 1128
Sample Type / Analysis Method: SUMMA/TO-15
Sampling Start Time: 8:41
Sampling Finish Time: 9:41

During Sampling	
Time	**Vacuum**
8:56	-23.42
9:14	-15.27

Did Summa Canister go to ambient pressure? No

Pressure gauge reading (Pre-opening): **Flow Controller:** -30.24 in.Hg
Pressure gauge reading (After sample collected): **Flow Controller:** -2.75 in.Hg

Environmental Conditions (Outside):	**Before Sampling**	**After Sampling**
Temperature:	45°	45°
Barometric Pressure:	30.07	30.07
Prevailing Wind Direction:	Northeast ~4mph	Northeast ~4mph
General Weather Conditions:	Partly cloudy	Partly cloudy

Photographs taken before sampling? No **If Yes, what time:** NA **Taken by:** NA
Vacuum prior to sampling (in. WC): NA
Ambient air concentration (ppm): 0.4
Soil gas concentration prior to sampling (ppm): 2.5
Vapor point purged for 5 minutes **with a MiniRAE (500-600 cc/min) prior to sampling.**

Comments:

GEI Consultants

SUB-SLAB SAMPLING CHECKLIST

Sampling Location:
163 Glen Street
SSV-3

Sample ID: 045163-163Glen-SSV3

Date: 11/27/2019
Sampling personnel: S. Trant
Summa Canister ID: 3197
Flow Regulator ID: 556
Sample Type / Analysis Method: SUMMA/TO-15
Sampling Start Time: 8:38
Sampling Finish Time: 9:38

During Sampling	
Time	**Vacuum**
8:56	-22.47
9:14	-15.02

Did Summa Canister go to ambient pressure? No

Pressure gauge reading (Pre-opening): Flow Controller: -29.72 in.Hg
Pressure gauge reading (After sample collected): Flow Controller: -4.60 in.Hg

Environmental Conditions (Outside):	**Before Sampling**	**After Sampling**
Temperature:	45°	45°
Barometric Pressure:	30.07	30.07
Prevailing Wind Direction:	Northeast ~4mph	Northeast ~4mph
General Weather Conditions:	Partly cloudy	Partly cloudy

Photographs taken before sampling? No **If Yes, what time:** NA **Taken by:** NA
Vacuum prior to sampling (in. WC): NA
Ambient air concentration (ppm): 0.4
Soil gas concentration prior to sampling (ppm): 4.2
Vapor point purged for 5 minutes **with a MiniRAE (500-600 cc/min) prior to sampling.**

Comments:

GEI Consultants

AMBIENT AIR SAMPLING CHECKLIST

Sampling Location: 163 Glen Street IA-1

Sample ID: 045163-6163Glen-IA1

Date: 11/26/19-11/27/19

Sampling personnel: S. Trant

Summa Canister ID: 2594

Flow Regulator ID: 01376

Sample Type / Analysis Method: TO15/Summa **11/27/2019**

Sampling Start Time: 8:30 on 11/26/19

Sampling Finish Time: 8:06 11/27/19

During Sampling	
Time	**Vacuum**
7:27	-5.90
7:50	-5.43

Did Summa canister go to ambient pressure? Yes / **No**

Vacuum pressure reported by Laboratory: ---

Pressure gauge reading (Pre-opening): Flow Controller: -30.01 in. Hg

Pressure gauge reading (After sample collected): Flow Controller: -4.63 in. Hg

Environmental Conditions (Outside):	**Before Sampling**	**After Sampling**
Temperature (°F):	46°	45°
Barometric Pressure (in. Hg):	29.99	30.07
Prevailing Wind Direction:	Southwest ~5mph	Northeasat ~4mph
General Weather Conditions:	Partly Cloudy	Partly Cloudy

Environmental Conditions (At Sample Location):	**Before Sampling**	**After Sampling**
Temperature (°F):	NM	NM
Barometric Pressure (in. Hg):	NM	NM

PID readings at sample location (ppm):	0.1 ppm	0.1 ppm

Photographs taken before sampling? Yes / No **If Yes, what time:** 8:30 **Taken by: SMT**

Photographs taken after sampling? Yes / **No** **If Yes, what time:** NA **Taken by:** NA

Was the building aired out prior to sample collection? Yes / **No** **If yes, how long?**

Windows open? Yes / No **Ventilation fans?** Yes / **No**

Was there significant precipitation within 12 hours of (or during) the sampling event? Yes / **No**

Were any of the residents home during sampling? Yes / No **If yes, provide detail:**

Did any of the occupants NOT follow instruction for residents? Yes / **No** **If yes, describe below:**

Notes:

GEI Consultants

AMBIENT AIR SAMPLING CHECKLIST

Sampling Location:
163 Glen Street
IA-2

Sample ID: 045163-6163Glen-IA2

Date: 11/26/19-11/27/19
Sampling personnel: S. Trant
Summa Canister ID: 767
Flow Regulator ID: 0551
Sample Type / Analysis Method: TO15/Summa **11/27/2019**
Sampling Start Time: 8:29 on 11/26/19
Sampling Finish Time: 8:29 on 11/27/19

During Sampling	
Time	**Vacuum**
7:28	-6.51
7:51	-6.10

Did Summa canister go to ambient pressure? Yes / **No**
Vacuum pressure reported by Laboratory: ---

Pressure gauge reading (Pre-opening): **Flow Controller: -**29.91 in. Hg
Pressure gauge reading (After sample collected): **Flow Controller:** -5.47 in. Hg

Environmental Conditions (Outside):	**Before Sampling**	**After Sampling**
Temperature (°F):	46°	45°
Barometric Pressure (in. Hg):	29.99	30.07
Prevailing Wind Direction:	Southwest ~5mph	Northeasat ~4mph
General Weather Conditions:	Partly Cloudy	Partly Cloudy

Environmental Conditions (At Sample Location):	**Before Sampling**	**After Sampling**
Temperature (°F):	NM	NM
Barometric Pressure (in. Hg):	NM	NM

PID readings at sample location (ppm): 0.5 ppm 0.5 ppm

Photographs taken before sampling? Yes / No **If Yes, what time:** 8:29 **Taken by:** SMT
Photographs taken after sampling? Yes / **No** **If Yes, what time:** NA **Taken by:** NA

Was the building aired out prior to sample collection? Yes / **No** **If yes, how long?**
Windows open? Yes / No **Ventilation fans?** Yes / **No**
Was there significant precipitation within 12 hours of (or during) the sampling event? Yes / **No**
Were any of the residents home during sampling? Yes / No **If yes, provide detail:**
Did any of the occupants NOT follow instruction for residents? Yes / **No** **If yes, describe below:**

Notes:

GEI Consultants

AMBIENT AIR SAMPLING CHECKLIST

Sampling Location:
163 Glen Street
IA-3

Sample ID: 045163-6163Glen-IA3

Date: 11/26/19-11/27/19
Sampling personnel: S. Trant
Summa Canister ID: 3054
Flow Regulator ID: 01185
Sample Type / Analysis Method: TO15/Summa **11/27/2019**
Sampling Start Time: 8:27 on 11/26/19
Sampling Finish Time: 8:27 on 11/27/19

During Sampling	
Time	**Vacuum**
7:29	-6.03
7:52	-5.59

Did Summa canister go to ambient pressure? Yes / **No**
Vacuum pressure reported by Laboratory: ---

Pressure gauge reading (Pre-opening): Flow Controller: --29.93 in. Hg
Pressure gauge reading (After sample collected): Flow Controller: -4.97 in. Hg

Environmental Conditions (Outside):	**Before Sampling**	**After Sampling**
Temperature (°F):	46°	45°
Barometric Pressure (in. Hg):	29.99	30.07
Prevailing Wind Direction:	Southwest ~5mph	Northeasat ~4mph
General Weather Conditions:	Partly Cloudy	Partly Cloudy

Environmental Conditions (At Sample Location):	**Before Sampling**	**After Sampling**
Temperature (°F):	NM	NM
Barometric Pressure (in. Hg):	NM	NM

PID readings at sample location (ppm): 0.1 ppm 0.1 ppm

Photographs taken before sampling? Yes / No **If Yes, what time:** 8:27 **Taken by:** SMT
Photographs taken after sampling? Yes / **No** **If Yes, what time:** NA **Taken by:** NA

Was the building aired out prior to sample collection? Yes / **No** **If yes, how long?**
Windows open? Yes / No **Ventilation fans?** Yes / **No**
Was there significant precipitation within 12 hours of (or during) the sampling event? Yes / **No**
Were any of the residents home during sampling? Yes / No **If yes, provide detail:**
Did any of the occupants NOT follow instruction for residents? Yes / **No** **If yes, describe below:**

Notes:

GEI Consultants

AMBIENT AIR SAMPLING CHECKLIST

Sampling Location:
163 Glen Street
IA-4

Sample ID: 045163-6163Glen-IA4

Date: 11/26/19-11/27/19
Sampling personnel: S. Trant
Summa Canister ID: 930
Flow Regulator ID: 0498
Sample Type / Analysis Method: TO15/Summa **11/27/2019**
Sampling Start Time: 8:28 on 11/26/19
Sampling Finish Time: 8:28 on 11/27/19

During Sampling	
Time	**Vacuum**
7:30	-4.45
7:42	-4.22

Did Summa canister go to ambient pressure? Yes / **No**
Vacuum pressure reported by Laboratory: ---

Pressure gauge reading (Pre-opening): **Flow Controller:** -30.30 in. Hg
Pressure gauge reading (After sample collected): **Flow Controller:** -3.53 in. Hg

Environmental Conditions (Outside):	**Before Sampling**	**After Sampling**
Temperature (°F):	46°	45°
Barometric Pressure (in. Hg):	29.99	30.07
Prevailing Wind Direction:	Southwest ~5mph	Northeasat ~4mph
General Weather Conditions:	Partly Cloudy	Partly Cloudy

Environmental Conditions (At Sample Location):	**Before Sampling**	**After Sampling**
Temperature (°F):	NM	NM
Barometric Pressure (in. Hg):	NM	NM

PID readings at sample location (ppm):	0.0 ppm	0.0 ppm

Photographs taken before sampling? Yes / No **If Yes, what time:** 8:28 **Taken by:** SMT
Photographs taken after sampling? Yes / **No** **If Yes, what time:** NA **Taken by:** NA

Was the building aired out prior to sample collection? Yes / **No** **If yes, how long?**
Windows open? Yes / No **Ventilation fans?** Yes / **No**
Was there significant precipitation within 12 hours of (or during) the sampling event? Yes / **No**
Were any of the residents home during sampling? Yes / No **If yes, provide detail:**
Did any of the occupants NOT follow instruction for residents? Yes / **No** **If yes, describe below:**

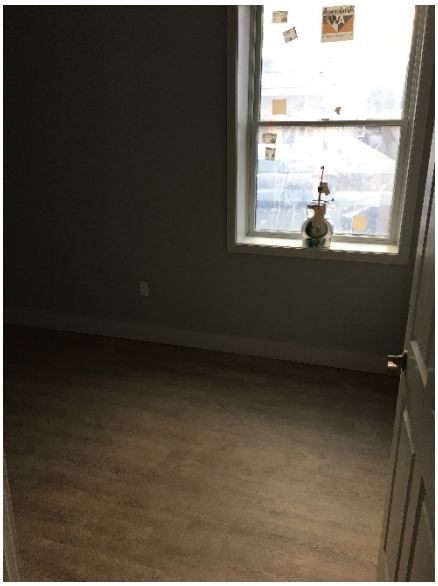
Notes:

163 Glen Street Air Samples (11/27/19)

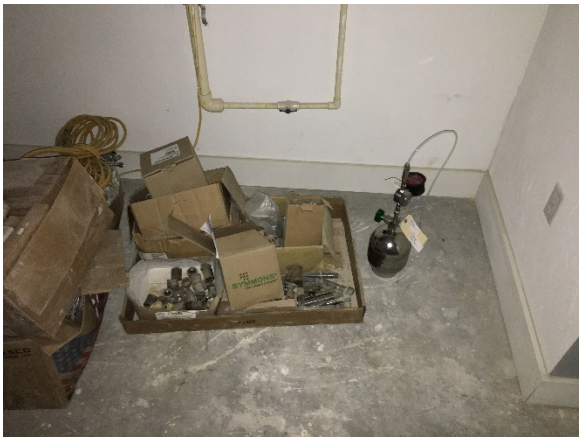
163Glen-IA3

163Glen-IA4

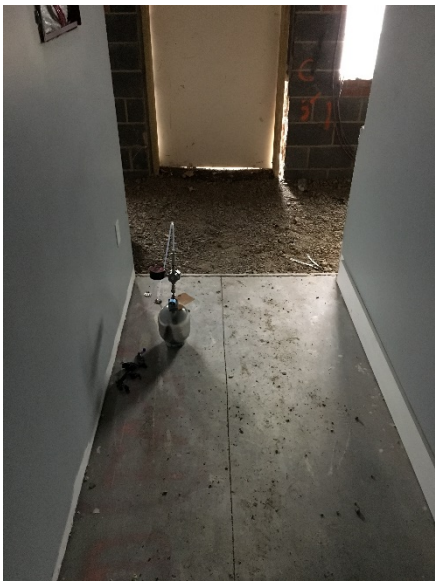
163Glen-IA2



163Glen-IA1



163Glen-SSV2



163Glen-SSV3

Appendix F

Field Monitoring Forms and Inspection Logs

50 Tufts Street Sub-Slab Depressurization System
Monthly Monitoring Form

GENERAL MONITORING INFORMATION

GEI Field Representative(s):	M. Greer	**Monitoring Start Time:**	11:45 AM
		Monitoring End Time:	12:30 PM
Date:	06/11/19		
Weather:	70°F, sunny		

INSTRUMENTATION INFORMATION

Instrument	Manufacturer	Model	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	MiniRAE 3000	100 ppm Isobutylene	**Y** / N 100.0 ppm
Manometer (in. H_2O)	Dwyer	Mark III-475-0 Series	N/A	Zeroed before each reading
Anemomaster (CFM)	TSI	VelociCalc	N/A	N/A

FIELD MEASUREMENTS & OBSERVATIONS

System Status/Configuration

Fenced Enclosure Secure?	Yes
Blower On?	Yes
Condensate Accumulated?	No
Condensate Drained?	NA
Hour Meter Reading?	NM
Lead Carbon Unit?	A
Secondary Carbon Unit?	B
Polish Carbon Unit?	N/A
VFD Setting (Hz)	60

Pressure/VOC Measurements

Monitoring Point	Pressure (in. H_2O)	VOC (ppm)
West Header	NM	NM
Center Header	NM	NM
East Header	NM	NM
North Header	NM	NM
South Header	NM	NM
Combined System Influent	NM	3
Blower Effluent	NM	3.5
Lead Carbon Effluent	NM	0.0
Secondary Carbon Effluent	NM	0.0
System Effluent	Effluent is secondary tank - Tank C offline	
Ambient Air		0.0
Blower Filter Inlet	NM	
Blower Filter Outlet	NM	

System Flow Rate Data

Velocity (ft/min)	System Flowrate (CFM):
NM	NM

Tank Exterior Monitoring

Bubbling Paint Visible?

Tank	Y/N
A	Yes
B	Yes
C	Yes

Rust Visible?

Tank	Y/N
A	Yes
B	Yes
C	Yes

ABBREVIATIONS

ppm = parts per million
CFM = cubic feet per minute
ft/min = feet per minute
PID = photoionization detector
N/A = Not Applicable
VOC = volatile organic compound
in. H2O = inches of water column
NM = Not Measured
VFD = Variable Frequency Drive

COMMENTS

50 Tufts Street Sub-Slab Depressurization System
Monthly Monitoring Form

GENERAL MONITORING INFORMATION

GEI Field Representative(s):	M. Greer	**Monitoring Start Time:**	1:05 PM
	C. Saledas	**Monitoring End Time:**	1:25 PM
Date:	07/10/19		
Weather:	90°F, sunny		

INSTRUMENTATION INFORMATION

Instrument	Manufacturer	Model	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	MiniRAE 3000	100 ppm Isobutylene	**Y** / N
Manometer (in. H_2O)	Dwyer	Mark III-475-0 Series	N/A	Zeroed before each reading
Anemomaster (CFM)	TSI	VelociCalc	N/A	N/A

FIELD MEASUREMENTS & OBSERVATIONS

System Status/Configuration

Fenced Enclosure Secure?	Yes
Blower On?	Yes
Condensate Accumulated?	No
Condensate Drained?	NA
Hour Meter Reading?	NM
Lead Carbon Unit?	A
Secondary Carbon Unit?	B
Polish Carbon Unit?	N/A
VFD Setting (Hz)	60

Pressure/VOC Measurements

Monitoring Point	Pressure (in. H_2O)	VOC (ppm)
West Header	-2.45	2.4
Center Header	-2.34	3.3
East Header	-2.45	2.4
North Header	-2.44	2.6
South Header	-2.52	20.4
Combined System Influent	-6.21	0.0
Blower Effluent	37.3	2.5
Lead Carbon Effluent	8.52	0.0
Secondary Carbon Effluent	15.69	0.0
System Effluent	Effluent is secondary tank - Tank C offline	
Ambient Air		0.0
Blower Filter Inlet	15	
Blower Filter Outlet	NA	

System Flow Rate Data

Velocity (ft/min)	System Flowrate (CFM):
6594	525

Tank Exterior Monitoring

Bubbling Paint Visible?

Tank	Y/N
A	Yes
B	Yes
C	Yes

Rust Visible?

Tank	Y/N
A	Yes
B	Yes
C	Yes

ABBREVIATIONS

ppm = parts per million
CFM = cubic feet per minute
ft/min = feet per minute
PID = photoionization detector
N/A = Not Applicable
VOC = volatile organic compound
in. H2O = inches of water column
NM = Not Measured
VFD = Variable Frequency Drive

COMMENTS

50 Tufts Street Sub-Slab Depressurization System
Monthly Monitoring Form

GENERAL MONITORING INFORMATION

GEI Field Representative(s):	M. Greer	**Monitoring Start Time:**	3:15 PM
		Monitoring End Time:	3:30 PM
Date:	08/22/19		
Weather:	90°F, sunny		

INSTRUMENTATION INFORMATION

Instrument	Manufacturer	Model	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	MiniRAE 3000	100 ppm Isobutylene	**Y** / N 100.0 ppm
Manometer (in. H_2O)	Dwyer	Mark III-475-0 Series	N/A	Zeroed before each reading
Anemomaster (CFM)	TSI	VelociCalc	N/A	N/A

FIELD MEASUREMENTS & OBSERVATIONS

System Status/Configuration

Fenced Enclosure Secure?	Yes
Blower On?	Yes
Condensate Accumulated?	No
Condensate Drained?	NA
Hour Meter Reading?	NM
Lead Carbon Unit?	A
Secondary Carbon Unit?	B
Polish Carbon Unit?	N/A
VFD Setting (Hz)	60

Pressure/VOC Measurements

Monitoring Point	Pressure (in. H_2O)	VOC (ppm)
West Header	NM	NM
Center Header	NM	NM
East Header	NM	NM
North Header	NM	NM
South Header	NM	NM
Combined System Influent	NM	44.7
Blower Effluent	NM	47.8
Lead Carbon Effluent	NM	0.0
Secondary Carbon Effluent	NM	0.0
System Effluent	Effluent is secondary tank - Tank C offline	
Ambient Air		0.0
Blower Filter Inlet	NM	
Blower Filter Outlet	NM	

System Flow Rate Data

Velocity (ft/min)	System Flowrate (CFM):
NM	NM

Tank Exterior Monitoring

Bubbling Paint Visible?

Tank	Y/N
A	Yes
B	Yes
C	Yes

Rust Visible?

Tank	Y/N
A	Yes
B	Yes
C	Yes

ABBREVIATIONS

ppm = parts per million
CFM = cubic feet per minute
ft/min = feet per minute
PID = photoionization detector
N/A = Not Applicable
VOC = volatile organic compound
in. H2O = inches of water column
NM = Not Measured
VFD = Variable Frequency Drive

COMMENTS

50 Tufts Street Sub-Slab Depressurization System
Monthly Monitoring Form

GENERAL MONITORING INFORMATION

GEI Field Representative(s):	M. Greer	**Monitoring Start Time:**	3:15 PM
		Monitoring End Time:	3:30 PM
Date:	09/23/19		
Weather:	85°F, partly cloudy		

INSTRUMENTATION INFORMATION

Instrument	Manufacturer	Model	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	MiniRAE 3000	100 ppm Isobutylene	**Y** / N 100.0 ppm
Manometer (in. H_2O)	Dwyer	Mark III-475-0 Series	N/A	Zeroed before each reading
Anemomaster (CFM)	TSI	VelociCalc	N/A	N/A

FIELD MEASUREMENTS & OBSERVATIONS

System Status/Configuration

Fenced Enclosure Secure?	Yes
Blower On?	Yes
Condensate Accumulated?	No
Condensate Drained?	NA
Hour Meter Reading?	NM
Lead Carbon Unit?	A
Secondary Carbon Unit?	B
Polish Carbon Unit?	N/A
VFD Setting (Hz)	60

Pressure/VOC Measurements

Monitoring Point	Pressure (in. H_2O)	VOC (ppm)
West Header	NM	NM
Center Header	NM	NM
East Header	NM	NM
North Header	NM	NM
South Header	NM	NM
Combined System Influent	NM	1
Blower Effluent	NM	4.8
Lead Carbon Effluent	NM	0.0
Secondary Carbon Effluent	NM	0.0
System Effluent	Effluent is secondary tank - Tank C offline	
Ambient Air		0.0
Blower Filter Inlet	NM	
Blower Filter Outlet	NM	

System Flow Rate Data

Velocity (ft/min)	System Flowrate (CFM):
NM	NM

Tank Exterior Monitoring

Bubbling Paint Visible?

Tank	Y/N
A	Yes
B	Yes
C	Yes

Rust Visible?

Tank	Y/N
A	Yes
B	Yes
C	Yes

ABBREVIATIONS

ppm = parts per million
CFM = cubic feet per minute
ft/min = feet per minute
PID = photoionization detector
N/A = Not Applicable
VOC = volatile organic compound
in. H2O = inches of water column
NM = Not Measured
VFD = Variable Frequency Drive

COMMENTS

50 Tufts Street Sub-Slab Depressurization System
Monthly Monitoring Form

GENERAL MONITORING INFORMATION

GEI Field Representative(s):	C. Saledas	**Monitoring Start Time:**	12:40 PM
		Monitoring End Time:	1:40 PM
Date:	10/17/19		
Weather:	50°F, cloudy		

INSTRUMENTATION INFORMATION

Instrument	Manufacturer	Model	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	MiniRAE 3000	100 ppm Isobutylene	**Y** / N
Manometer (in. H_2O)	Dwyer	Mark III-475-0 Series	N/A	Zeroed before each reading
Anemomaster (CFM)	TSI	VelociCalc	N/A	N/A

FIELD MEASUREMENTS & OBSERVATIONS

System Status/Configuration

Fenced Enclosure Secure?	Yes
Blower On?	Yes
Condensate Accumulated?	No
Condensate Drained?	NA
Hour Meter Reading?	NM
Lead Carbon Unit?	A
Secondary Carbon Unit?	B
Polish Carbon Unit?	N/A
VFD Setting (Hz)	60

Pressure/VOC Measurements

Monitoring Point	Pressure (in. H_2O)	VOC (ppm)
West Header	-2.25	4.1
Center Header	-2.14	6.9
East Header	-2.43	3.9
North Header	-2.71	2.9
South Header	-2.21	28.1
Combined System Influent	-6.13	0.0
Blower Effluent	37.4	10.1
Lead Carbon Effluent	25.21	0.0
Secondary Carbon Effluent	1.71	0.0
System Effluent	Effluent is secondary tank - Tank C offline	
Ambient Air		0.0
Blower Filter Inlet	15	
Blower Filter Outlet	NA	

System Flow Rate Data

Velocity (ft/min)	System Flowrate (CFM):
6123	525

Tank Exterior Monitoring

Bubbling Paint Visible?

Tank	Y/N
A	Yes
B	Yes
C	Yes

Rust Visible?

Tank	Y/N
A	Yes
B	Yes
C	Yes

ABBREVIATIONS

ppm = parts per million
CFM = cubic feet per minute
ft/min = feet per minute
PID = photoionization detector
N/A = Not Applicable
VOC = volatile organic compound
in. H2O = inches of water column
NM = Not Measured
VFD = Variable Frequency Drive

COMMENTS

50 Tufts Street Sub-Slab Depressurization System
Monthly Monitoring Form

GENERAL MONITORING INFORMATION

GEI Field Representative(s):	M. Greer	**Monitoring Start Time:**	12:50 PM
		Monitoring End Time:	1:00 PM
Date:	11/22/19		
Weather:	50°F, partly cloudy		

INSTRUMENTATION INFORMATION

Instrument	Manufacturer	Model	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	MiniRAE 3000	100 ppm Isobutylene	**Y** / N 100.0 ppm
Manometer (in. H_2O)	Dwyer	Mark III-475-0 Series	N/A	Zeroed before each reading
Anemomaster (CFM)	TSI	VelociCalc	N/A	N/A

FIELD MEASUREMENTS & OBSERVATIONS

System Status/Configuration

Fenced Enclosure Secure?	Yes
Blower On?	Yes
Condensate Accumulated?	No
Condensate Drained?	NA
Hour Meter Reading?	NM
Lead Carbon Unit?	A
Secondary Carbon Unit?	B
Polish Carbon Unit?	N/A
VFD Setting (Hz)	60

Pressure/VOC Measurements

Monitoring Point	Pressure (in. H_2O)	VOC (ppm)
West Header	NM	NM
Center Header	NM	NM
East Header	NM	NM
North Header	NM	NM
South Header	NM	NM
Combined System Influent	NM	1.8
Blower Effluent	NM	1.9
Lead Carbon Effluent	NM	0.1
Secondary Carbon Effluent	NM	0.0
System Effluent	Effluent is secondary tank - Tank C offline	
Ambient Air		0.0
Blower Filter Inlet	NM	
Blower Filter Outlet	NM	

System Flow Rate Data

Velocity (ft/min)	System Flowrate (CFM):
NM	NM

Tank Exterior Monitoring

Bubbling Paint Visible?

Tank	Y/N
A	Yes
B	Yes
C	Yes

Rust Visible?

Tank	Y/N
A	Yes
B	Yes
C	Yes

ABBREVIATIONS

ppm = parts per million
CFM = cubic feet per minute
ft/min = feet per minute
PID = photoionization detector
N/A = Not Applicable
VOC = volatile organic compound
in. H2O = inches of water column
NM = Not Measured
VFD = Variable Frequency Drive

COMMENTS

60 Tufts Street
SSDS Field Monitoring Form

GENERAL MONITORING INFORMATION

GEI Field Representative(s):	M. Greer	**Monitoring Start Time:**	12:30 PM
	C. Saledas	**Monitoring End Time:**	1:00 PM
Date:	07/10/19		
Weather:	~90°F,sunny		

INSTRUMENTATION INFORMATION

Instrument	Manufacturer	Model	Serial No.	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	ppmRAE 3000	592-9100019	100 ppm Isobutylene Time: 12:30	**Y** / N Cal. Reading (ppm): 100.0
Manometer (in. H_2O)	Dwyer	Mark III-475-0 Series	N/A	N/A	Zeroed before each reading? **Y** / N
Anemomaster (CFM)	Kanomax	A034	N/A	N/A	N/A

FIELD MEASUREMENTS / OBSERVATIONS

System Status/Configuration	
Blower Enclosure Secure?	**Y** / N
Blower On?	**Y** / N
Influent Condensate Accumulated?	Y / **N**
Effluent Condensate Accumulated?	Y / **N**
Condensate Drained?	Y / **N**
Hour Meter Reading	N/A
VFD Setting (Hz)	60

Pressure/VOC Measurements		
Monitoring Point	**Pressure (in. H_2O)**	**VOC (ppm)**
North Header	NM*	NM*
South Header	NM*	NM*
Combined System Influent	-12.73	0.0
System Effluent	N/A	0.0
Blower Filter Inlet	12	
Blower Filter Outlet	25	
Ambient Air Outside Blower Enclosure		0.0

System Flow Rate Data	
Velocity (feet per minute)	**System Flowrate (CFM): = (PI * r^2) * ft per min**
2165	236

NOTES:

1. ppm = parts per million.
2. CFM = cubic feet per minute.
3. PID = photoionization detector.
4. N/A = Not Applicable.
5. VOC = volatile organic compound.
6. in. H_2O = inches of water column.
7. VFD = variable frequency drive.
8. Hz = Hertz.

COMMENTS:

* Note: Headers not measured because we did not have access to the building.

60 Tufts Street
SSDS Field Monitoring Form

GENERAL MONITORING INFORMATION

GEI Field Representative(s):	C. Saledas	**Monitoring Start Time:**	1:55 PM
		Monitoring End Time:	2:10 PM
Date:	10/17/19		
Weather:	~50-55°F,cloudy		

INSTRUMENTATION INFORMATION

Instrument	Manufacturer	Model	Serial No.	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	ppmRAE 3000	592-9100019	98.7 ppm Isobutylene Time: 13:55	**Y** / N Cal. Reading (ppm): 100.0
Manometer (in. H_2O)	Dwyer	Mark III-475-0 Series	N/A	N/A	Zeroed before each reading? **Y** / N
Anemomaster (CFM)	Kanomax	A034	N/A	N/A	N/A

FIELD MEASUREMENTS / OBSERVATIONS

System Status/Configuration	
Blower Enclosure Secure?	**Y** / N
Blower On?	**Y** / N
Influent Condensate Accumulated?	Y / **N**
Effluent Condensate Accumulated?	Y / **N**
Condensate Drained?	Y / **N**
Hour Meter Reading	N/A
VFD Setting (Hz)	60

Pressure/VOC Measurements		
Monitoring Point	**Pressure (in. H_2O)**	**VOC (ppm)**
North Header	NM*	NM*
South Header	NM*	NM*
Combined System Influent	-12.65	0.0
System Effluent	N/A	0.0
Blower Filter Inlet	-7.5	
Blower Filter Outlet	31	
Ambient Air Outside Blower Enclosure		0.0

System Flow Rate Data	
Velocity (feet per minute)	**System Flowrate (CFM): = (PI * r^2) * ft per min**
Nm	NM

NOTES:

1. ppm = parts per million.
2. CFM = cubic feet per minute.
3. PID = photoionization detector.
4. N/A = Not Applicable.
5. VOC = volatile organic compound.
6. in. H_2O = inches of water column.
7. VFD = variable frequency drive.
8. Hz = Hertz.

COMMENTS:

* Note: Headers not measured because we did not have access to the building.

Capuano Center Sub-Slab Depressurization System
Monthly Mechanical Inspection Log

GENERAL INFORMATION

			Outdoor Monitoring	Indoor Monitoring
GEI Field Representatives:	M. Greer			
	C. Saledas	Start-time of monitoring work:	11:05 AM	NA
Date:	07/10/19	End-time of monitoring work:	12:10 PM	NA
Weather:	sunny, ~90 ° F			

INSTRUMENTATION INFORMATION

Instrument	Manufacturer	Model	GEI Identification No.	Calibrant	Successful Calibration
PID (ppm)	RAE Systems	miniRAE3000		100 ppm Isobutylene	Yes
Manometer (in. H_20)	Dwyer	Mark III-475-0000-FM	N/A	N/A	Zeroed before each reading
Hot Wire Thermo-Anemometer (ft/min)	Kanomax	A034	050183	N/A	Zeroed before each reading

OBSERVATIONS AND MEASUREMENTS

ENCLOSURE MEASUREMENTS

Shed Secure? NA

Condensate Accumulated? No

Condensate Drained? No

Influent Flow Rate

Port ID	Flow (cfm)
Manifold 12	80
Manifold 13	77
Manifold 14	81

System Monitoring Points

Port ID	Typical Vacuum Range (in. H_2O)	Vacuum (in. H_2O)	Typical Range of VOCs (ppb)	VOC Concentration (ppm)
Manifold 12	-0.300 to -0.500	-0.614	0 to 2000	0.1
Manifold 13	-0.300 to -0.500	-1.340	0 to 2000	0.0
Manifold 14	-0.300 to -0.500	-0.793	0 to 2000	0.0

EXTERIOR EXTRACTION MONITORING POINT MEASUREMENTS

Monitoring Point Identification	Status (on/off)	Vacuum (in. H_2O)	VOC Concentration (ppm)
122-1	on	-0.434	0.2
122-2	on	-0.460	0.0
122-3	on	-0.449	0.1
126-1	on	-0.443	0.0
126-2	on	-0.343	0.1
126-3	on	-0.366	0.1
134-1	on	-1.120	0.1
134-2	on	-1.180	0.1
134-3	on	-1.200	0.0
138-1	on	-1.220	0.0
138-2	on	-1.210	0.0
138-3	on	-1.210	0.0
142-1	on	-0.557	0.0
142-2	on	-0.581	0.0
142-3	on	-0.564	0.0
146-1	on	-0.548	0.0
146-2	on	-0.542	0.0
146-3	on	-0.542	0.0

Capuano Center Sub-Slab Depressurization System
Monthly Mechanical Inspection Log

INTERIOR MEASUREMENTS

Ambient Air Measurements

Classroom	VOC Concentration (ppm)
122	NM
126	NM
134	NM
138	NM
133	NM
137	NM
142	NM
146	NM

Sub-Slab Monitoring Points

Monitoring Point Identification	Vacuum (in. H_2O)	VOC Concentration (ppm)
Room 122A	NM	NM
Room 126A	NM	NM
Room 133A	NM	NM
Room 137A	NM	NM
Room 142A	NM	NM
Room 146A	NM	NM

COMMENTS

Notes:

1. Manifold 12 is the manifold pipe for rooms 122 and 126.
   Manifold 13 is the manifold pipe for rooms 134 and 138.
   Manifold 14 is the manifold pipe for rooms 142 and 146.
2. PID = photoionization detector.
3. ppb = parts per billion.
4. ppm = parts per million.
5. in. H_2O = inches of water column.
6. ft = feet.
7. cfm = cubic feet per minute.
8. NA = Not Applicable.
9. NM = Not Measured.
10. Anemometer not functioning. Influent flow was not measured.

Capuano Center Sub-Slab Depressurization System
Monthly Mechanical Inspection Log

GENERAL INFORMATION

			Outdoor Monitoring	Indoor Monitoring
GEI Field Representatives:	C. Saledas	Start-time of monitoring work:	11:00 AM	NA
		End-time of monitoring work:	12:30 PM	NA
Date:	10/17/19			
Weather:	overcast, ~50 ° F			

INSTRUMENTATION INFORMATION

Instrument	Manufacturer	Model	GEI Identification No.	Calibrant	Successful Calibration
PID (ppm)	RAE Systems	miniRAE3000		100 ppm Isobutylene	Yes
Manometer (in. H_20)	Dwyer	Mark III-475-0000-FM	N/A	N/A	Zeroed before each reading
Hot Wire Thermo-Anemometer (ft/min)	Kanomax	A034	050183	N/A	Zeroed before each reading

OBSERVATIONS AND MEASUREMENTS

ENCLOSURE MEASUREMENTS

Shed Secure? NA

Condensate Accumulated? No

Condensate Drained? No

Influent Flow Rate

Port ID	Flow (cfm)
Manifold 12	84
Manifold 13	77
Manifold 14	73

System Monitoring Points

Port ID	Typical Vacuum Range (in. H_2O)	Vacuum (in. H_2O)	Typical Range of VOCs (ppb)	VOC Concentration (ppm)
Manifold 12	-0.300 to -0.500	-0.714	0 to 2000	0.0
Manifold 13	-0.300 to -0.500	-1.706	0 to 2000	0.0
Manifold 14	-0.300 to -0.500	-0.839	0 to 2000	0.1

EXTERIOR EXTRACTION MONITORING POINT MEASUREMENTS

Monitoring Point Identification	Status (on/off)	Vacuum (in. H_2O)	VOC Concentration (ppm)
122-1	on	-0.489	0.0
122-2	on	-0.498	0.0
122-3	on	-0.538	0.0
126-1	on	-0.468	0.0
126-2	on	-0.352	0.0
126-3	on	-0.415	0.0
134-1	on	-1.140	0.1
134-2	on	-1.311	0.1
134-3	on	-0.737	0.0
138-1	on	-1.747	0.0
138-2	on	-1.312	0.0
138-3	on	-1.122	0.1
142-1	on	-0.448	0.1
142-2	on	-0.625	0.0
142-3	on	-0.619	0.0
146-1	on	-0.615	0.3
146-2	on	-0.583	0.0
146-3	on	-0.592	0.1

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Sub-Slab Monitoring Points

Monitoring Point Identification	Vacuum (in. H_2O)	VOC Concentration (ppm)
Room 122A	NM	NM
Room 126A	NM	NM
Room 133A	NM	NM
Room 137A	NM	NM
Room 142A	NM	NM
Room 146A	NM	NM

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